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SPY Fluorescence Imaging

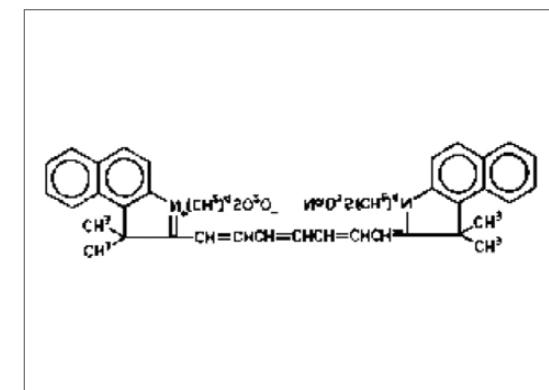
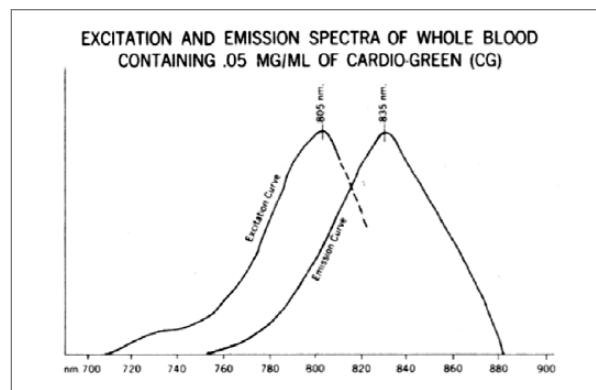
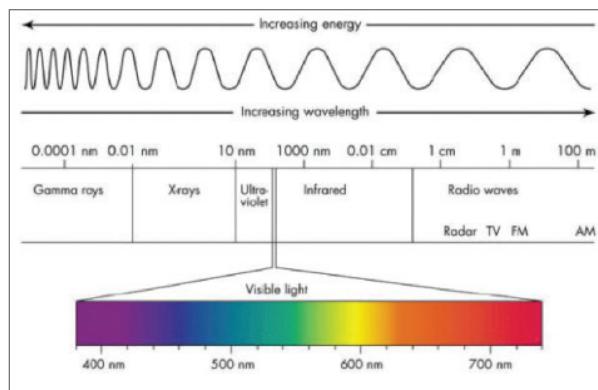
A bibliography of published clinical data,
abstracts, and commentary.

SPY Fluorescence Imaging was launched in the United States in 2005. Since then, this new fluorescence imaging technology for tissue perfusion has quickly become one of the most studied imaging systems in medicine. Within this document, there are more than 200 articles of published clinical data, abstracts, and commentaries. These papers demonstrate how SPY Fluorescence Imaging can be utilized across multiple applications.

Information contained in the articles, which are referenced in this bibliography, may reflect the manner in which medical devices and related products are actually used by physicians in hospitals and clinics. As you are aware, physicians, in their practice of medicine, may use medical devices and pharmaceuticals in any manner they deem to be in the best interest of their patients, even if the device or pharmaceutical is not cleared or approved by the Food and Drug Administration (FDA) for such uses. This is typically referred to as "off-label" use.

What is SPY Fluorescence Imaging?

SPY Fluorescence Imaging utilizes laser generated, near infrared, light and Indocyanine Green (ICG) as the imaging agent. ICG has a well established safety profile and is processed through the liver and excreted within bile. Upon injection, the ICG binds to plasma proteins in the blood. The laser light source illuminates the surgical field with white light and low intensity, invisible, infrared light, causing the ICG to fluoresce. The camera system detects the fluorescing ICG as it passes through the arterial, capillary and venous phases of perfusion.



SPY Fluorescence Imaging is the primary technology in the SPY PHI, SPY Elite System, PINPOINT Endoscopic Fluorescence Imaging System, LUNA Fluorescence Imaging System, and Firefly Fluorescence Imaging System (da Vinci Si Surgical System). The indicated uses for these devices are perfusion assessment in cardiac surgery, plastic and reconstructive surgery, open and minimally invasive gastrointestinal surgery and wound assessment.

Stryker does not promote any off-label use that may be discussed in any of the articles referenced in this bibliography.

Preface:

Please note that the materials contained in this bibliography are for informational and educational purposes only.

Cardiac Surgery

1. Rubens FD, Ruel M, Fremes SE. A New and Simplified Method for Coronary and Graft Imaging During CABG. *The Heart Surgery Forum* 2002; 5(2):141-144.
2. Vogt PR, Bauer EP, Graves K. Novadaq Spy™ Intraoperative Imaging System—Current Status. *Thoracic Cardiovascular Surgery* 2003; 51(1):49-51.
3. Tian G, Xiang B, Dai G, Sun J, Docherty J, Mangat R, Salerno TA, Deslauriers R. Myocardial Perfusion During Simultaneous Antegrade/Retrograde Cardioplegia. *Cardiovascular Engineering* 2003; 8(1/2):50-57.
4. Taggart DP, Choudhary B, Anastasiadis K, Abu-Omar Y, Balacumaraswami L, Pigott DW. Preliminary Experience with a Novel Intraoperative Fluorescence Imaging Technique to Evaluate the Patency of Bypass Grafts in Total Arterial Revascularization. *Annals of Thoracic Surgery* 2003; 75:870-873.
5. Reuthebuch OT, Kadner A, Lachat ML, Turina MI. Graft Occlusion After Deployment of the Symmetry Bypass System. *Annals of Thoracic Surgery* 2003; 75(5):1626-1629.
6. Coles C, Taggart D, Choudhary B, Abu-Omar Y, Balacumaraswami L, Pigott D. The use of a novel imaging technique to evaluate patency of coronary grafts. *Anaesthesia* 2003; 58:304.
7. Takahashi M, Ishikawa T, Higashidani K, Katoh H. SPY™: an innovative intra-operative imaging system to evaluate graft patency during off-pump coronary artery bypass grafting; *Interactive Cardiovascular and Thoracic Surgery* 2004; 3:479-483.
8. Reuthebuch O, Kadner A, Lachat M, Kunzli A, Schurr UP, Turina MI. Early bypass occlusion after deployment of nitinol connector devices. *The Journal of Thoracic and Cardiovascular Surgery* 2004; 127(5):1421-1426.
9. Reuthebuch O, Haeussler A, Genoni M, Tavakoli R, Odavic D, Kadner A, Turina M. Novadaq Spy* Intraoperative Quality Assessment in Off-Pump Coronary Artery Bypass Grafting. *Chest* 2004; 125:418-424.
10. Balacumaraswami L, Taggart DP. Digital Tools to Facilitate Intraoperative Coronary Artery Bypass Graft Patency Assessment; *Seminars in Thoracic and Cardiovascular Surgery* 2004; 16(3):266-271.
11. Balacumaraswami L, Abu-Omar Y, Anastasiadis K, Choudhary B, Pigott D, Yeong SK, Taggart DP. Does off-pump total arterial grafting increase the incidence of intraoperative graft failure? *The Journal of Thoracic and Cardiovascular Surgery* 2004; 238-244.
12. Yasuda T, Watanabe G, Tomita S. Transaortic injection technique in fluorescence imaging: Novel intraoperative assessment of anastomosis in off-pump coronary artery bypass grafting. *The Journal of Thoracic and Cardiovascular Surgery* 2005; 130(2):560-561.

13. Desai ND, Miwa S, Kodama D, Cohen G, Christakis GT, Goldman BS, Baerlocher MO, Pelletier MP, Fremes SE. Improving the Quality of Coronary Bypass Surgery with Intraoperative Angiography. *Journal of the American College of Cardiology* 2005; 46(8):1521-1525.
14. Balacumaraswami L, Abu-Omar Y, Choudhary B, Pigott D, Taggart DP. A comparison of transit-time flowmetry and intraoperative fluorescence imaging for assessing coronary artery bypass graft patency. *The Journal of Thoracic and Cardiovascular Surgery* 2005; 130(2):315-320.
15. Desai ND, Miwa S, Kodama D, Koyama T, Cohen G, Pelletier MP, Cohen EA, Christakis GT, Goldman BS, Fremes SE. A randomized comparison of intraoperative indocyanine green angiography and transit-time flow measurement to detect technical errors in coronary bypass grafts. *The Journal of Thoracic and Cardiovascular Surgery* 2006; 132(3):585-594.
16. Balacumaraswami L, Taggart D. Intraoperative Imaging Techniques to Assess Coronary Artery Bypass Graft Patency. *Annals of Thoracic Surgery* 2007; 83(6):2251-2257.
17. Waseda K, Ako J, Hasegawa T, Shimada Y, Ikeno F, Ishikawa T, Demura Y, Hatada K, Yock PG, Honda Y, Fitzgerald PJ, Takahashi M. Intraoperative Fluorescence Imaging System for On-Site Assessment of Off-Pump Coronary Artery Bypass Graft. *JACC: Cardiovascular Imaging* 2009; 2(5):604-612.
18. Taggart DP, Balacumaraswami L, Venkatapathy A. Radial Artery Jump Graft from Anterior to Posterior Descending Coronary Artery. *Asian Cardiovascular & Thoracic Annals* 2009; 17(2):143-146.
19. Singh SK, Desai ND, Chikazawa G, Tsuneyoshi H, Vincent J, Zagorski BM, Pen V, Moussa F, Cohen GN, Christakis GT, Fremes SE. The Graft Imaging to Improve Patency (GRIIP) clinical trial results. *The Journal of Thoracic and Cardiovascular Surgery* 2010; 139(2):294-301.
20. Bir SC, Pattillo CB, Pardue S, Kolluru GK, Docherty J, Goyette D, Dvorsky P, Kevil CG. Nitrite anion stimulates ischemic arteriogenesis involving NO metabolism. *Am J Physiol Heart Circ Physiol*. 2012 Jul;303(2):H178-88. Epub 2012 May 18. PubMed PMID: 22610173.
21. Ferguson TB, Chen C, Babb JD, Efird JR, Daggubati R, Cahill JM. Fractional flow reserve-guided coronary artery bypass grafting: Can intraoperative physiologic imaging guide decision making? *J Thorac Cardiovasc Surg*. 146: 4 824-835. October 2013.
22. Pardolesi A, Veronesi G, Solli P, Spaggiari L. Use of indocyanine green to facilitate intersegmental plane identification during robotic anatomic segmentectomy. *J Thorac Cardiovasc Surg*. 2014; 148:737-8.
23. Zhai, Q., Wang, Y., & Tian, A. (2017). Severe hemodynamic instability after indocyanine green injection during off-pump coronary artery bypass grafting: A case report. *Medicine*, 96(46), e8766. doi:10.1097/MD.00000000000008766

Gastrointestinal Surgery

24. van den Bos J, Jongen ACHM, Melenhorst J, Breukink SO, Lenaerts K, Schols RM, Bouvy ND3, Stassen LPS. Near-infrared fluorescence image-guidance in anastomotic colorectal cancer surgery and its relation to serum markers of anastomotic leakage: a clinical pilot study. *Surg Endosc.* 2019 Feb 1. doi: 10.1007/s00464-019-06673-6.
25. Mangano A, Fernandes E, Gheza F, Bustos R, Chen LL, Masrur M, Julianotti PC. Near-Infrared Indocyanine Green-Enhanced Fluorescence and Evaluation of the Bowel Microperfusion During Robotic Colorectal Surgery: a Retrospective Original Paper. *Surg Technol Int.* 2019 Feb 1;34. pii: sti34/1099.
26. Ortega CB, Guerron AD, Yoo JS. The Use of Fluorescence Angiography During Laparoscopic Sleeve Gastrectomy. *JSLS.* 2018 Apr-Jun;22(2). pii: e2018.00005. doi: 10.4293/JSLS.2018.00005.
27. Bornstein JE, Munger JA, Deliz J, Mui A1, Chen CS, Kim S, Khaitov S, Chessin DB, Ferguson TB, Bauer JJ. Assessment of Bowel End Perfusion After Mesenteric Division: Eye Versus SPY. *J Surg Res.* 2018 Dec;232:179-185. doi: 10.1016/j.jss.2018.06.015. Epub 2018 Jul 6.
28. Mizrahi I, de Lacy FB, Abu-Gazala M, Fernandez LM, Otero A, Sands DR, Lacy AM, Wexner SD. Transanal total mesorectal excision for rectal cancer with indocyanine green fluorescence angiography. *Tech Coloproctol.* 2018 Oct;22(10):785-791. doi: 10.1007/s10151-018-1869-z. Epub 2018 Nov 14.
29. Hagen ME, Diaper J, Douissard J, Jung MK, Buehler L, Aldenkortt F, Barcelos GK, Morel P. Early Experience with Intraoperative Leak Test Using a Blend of Methylene Blue and Indocyanine Green During Robotic Gastric Bypass Surgery. *Obes Surg.* 2019 Jan 3. doi: 10.1007/s11695-018-03625-2.
30. Turner JS, Okonkwo A, Chase A, Clark CE. Early outcomes of fluorescence angiography in the setting of endorectal mucosa advancement flaps. *Tech Coloproctol.* 2018 Jan;22(1):25-30. doi: 10.1007/s10151-017-1732-7.
31. Chang YK, et al., The impact of indocyanine-green fluorescence angiogram on colorectal resection, *The Surgeon* (2018), <https://doi.org/10.1016/j.surge.2018.08.006>.
32. Dinallo AM, Kolarsick P, Boyan WP, Protyniak B, James A, Dressner RM, Arvanitis ML. Does routine use of indocyanine green fluorescence angiography prevent anastomotic leaks? A retrospective cohort analysis. *Am J Surg.* 2018 Oct 16. pii: S0002-9610(18)30548-8. doi: 10.1016/j.amjsurg.2018.10.027
33. Kobiela J, Bertani E, Petz W, Crosta C, De Roberto G, Borin S, et al. Double indocyanine green technique of robotic right colectomy: Introduction of a new technique. *J Min Access Surg* 0;0:0.
34. Karampinis I, Keese M, Jakob J, Stasiunaitis V, Gerken A, Attenberger U, Post S, Kienle P, Nowak K. Indocyanine Green Tissue Angiography Can Reduce Extended Bowel Resections in Acute Mesenteric Ischemia. *J Gastrointest Surg.* 2018 Jul 10. doi: 10.1007/

s11605-018-3855-1.

35. Mizrahi, I., Abu-Gazala, M., Rickles, A.S., Fernandez, L.M., Petrucci, A., Wolf, J., Sands, D.R., Wexner, S.D. Indocyanine green fluorescence angiography during low anterior resection for low rectal cancer: results of a comparative cohort study. *Tech Coloproctol* (2018). <https://doi.org/10.1007/s10151-018-1832-z>
36. Liot, E., Assalino, M., Buchs, NC., Schiltz, B., Douissard,J., Morel, P., Ris, F. Does near-infrared (NIR) fluorescence angiography modify operative strategy during emergency procedures? *Surgical Endoscopy*. 2018, doi.org/10.1007/s00464-018-6226-9
37. Starker PM, Chinn B (2018) Using Outcomes Data to Justify Instituting ASC-NSQIP and New Technology. *Colorectal Cancer*. Vol.4 No.1: 3.
38. Ris, F., Liot, E., Buchs, N.C., Kraus, R., Ismael, G., Belfontali, V., Douissard, J., Cunningham, C., Lindsey, I., Guy, R., Jones, O., George, B., Morel, P., Mortensen, N.J., Hompes, R. and Cahill, R. on behalf of the Near-Infrared Anastomotic Perfusion Assessment Network VOIR (2018). Multicentre phase II trial of near-infrared imaging in elective colorectal surgery. *The British Journal Of Surgery*, doi: 10.1002/bjs.10844.
39. Cahill RA, Mortensen NJ. Intraoperative augmented reality for laparoscopic colorectal surgery by intraoperative near-infrared fluorescence imaging and optical coherence tomography. *Minerva Chir*. 2010 Aug;65(4):451-62. Review. PubMed PMID: 20802433.
40. Hamilton, A. R., Cuda, T. J., Westwood, D. A., & Stevenson, A. L. (2017). Indocyanine green fluorescence angiography (ICGFA) during laparoscopic and robotic colorectal surgery- a video vignette. *Colorectal Disease: The Official Journal Of The Association Of Coloproctology Of Great Britain And Ireland*, doi:10.1111/codi.13986
41. Pineda C, Shelton A, Raju N, Welton M. Use of intraoperative fluorescence vascular angiography to assess intestinal perfusion in the creation of intestinal anastomoses. Abstract - 2nd Biennial Meeting of the Eurasian Colorectal Technologies Association (ECTA) Turin, Italy, 15–17 June 2011. *Tech Coloproctol* (2011) 15:215–253.
42. Sherwinter D. Transanal Near-Infrared Imaging of Colorectal Anastomotic Perfusion. *Surg Laparosc Endosc Percutan Tech*. Volume 22, Number 5, October 2012.
43. Jafari MD, Lee KH, Halabi WJ, Mills SD, Carmichael JC, Stamos MJ, Pigazzi A. The use of indocyanine green fluorescence to assess anastomotic perfusion during robotic assisted laparoscopic rectal surgery. *Surg Endosc*. Published online: 13 February 2013.
44. Pacheco PE, Hill SM, Henriques SM, Paulsen JK, Anderson RC. The novel use of intraoperative laser-induced fluorescence of indocyanine green tissue angiography for evaluation of the gastric conduit in esophageal reconstructive surgery. *Am J Surg*. 205: 349-353. March 2013.
45. Bae SU, Baek SJ, Hur H, Baik SH, Kim NK, Mon BS. Intraoperative Near Infrared Fluorescence Imaging in Robotic Low Anterior Resection: Three Case Reports. *Yonsei Med J*. Vol 54, No 4, July 2013.
46. Hellan M, Giuseppe S, Pigazzi A, Lagares-Garcia JA. The influence of fluorescence imaging on the location of bowel transection during robotic left-sided colorectal surgery. *Surg Endosc*. Published online January 3, 2014.

47. Foppa C, Denoya PI, Tarta C, Bergamaschi R. Indocyanine green fluorescent dye during bowel surgery: Are the blood supply "guessing days" over? *Tech Coloproctol*. Published online February 21, 2014.
48. Ris M, Hompes R, Cunningham C, Lindsey I, Guy R, Jones O, George B, Cahill R, Mortensen NJ. Near-infrared (NIR) perfusion angiography in minimally invasive colorectal surgery. *Surg Endo*. Published online Feb 25, 2014.
49. Sarkaria IS, Bains MS, Finley DJ, Adusumilli PS, Huang J, Rusch VW, Jones DR, Rizk NP. Intraoperative Near-Infrared Fluorescence Imaging as an Adjunct to Robotic-Assisted Minimally Invasive Esophagectomy. *Innovations*. Vol 9, No 5, Sept/Oct 2014.
50. Gorgun E. Novel anastomotic techniques. *Seminars in Colon and Rectal Surgery* 25 (2014) 110–116.
51. Jafari MD, Wexner SD, Martz JE, McLemore EC, Margolin DA, Sherwinter, DA, Lee SW, Senagore AJ, Phelan MJ, Stamos MJ. Perfusion Assessment in Laparoscopic Left Sided/Anterior Resection (PILLAR II): A Multi-Institutional Study. *JACS*. Vol. 220, No. 1, January 2015.
52. Campbell C, Reames MK, Robinson M, Symanowski J, Salo JC. Conduit Vascular Evaluation is Associated with Reduction in Anastomotic Leak After Esophagectomy. *J Gastrointest Surg*. Published online 20 March 2015.
53. Protyniak B, Dinallo AM, Boyan Jr WP, Dressner RM, Arvanitis ML. Intraoperative Indocyanine Green Fluorescence Angiography – An Objective Evaluation of Anastomotic Perfusion in Colorectal Surgery. *The American Surgeon*. Vol 81. June 2015.
54. Ris F, Buchs NC, Morel P, Mortensen NJ, Hompes R. Discriminatory influence of PINPOINT perfusion imaging on diversion ileostomy after laparoscopic low anterior resection. *Colorectal Disease*© 2015 The Association of Coloproctology of Great Britain and Ireland. 17 (Suppl. 3), 29-31.
55. Grone J, Koch D, Kreis ME. Impact of intraoperative microperfusion assessment with PINPOINT Perfusion Imaging on surgical management of laparoscopic low rectal and anorectal anastomoses. *Colorectal Disease*© 2015 The Association of Coloproctology of Great Britain and Ireland. 17 (Suppl. 3), 22-28.
56. James DRC, Ris F, Yeung TM, Kraus R, Buchs NC, Mortensen NJ, Hompes RJ. Fluorescence angiography in laparoscopic low rectal and anorectal anastomoses with PINPOINT perfusion imaging – a critical appraisal with specific focus on leak risk reduction. *Colorectal Disease*© 2015 The Association of Coloproctology of Great Britain and Ireland. 17 (Suppl. 3), 16-21.
57. Nowak K, Sandra-Petrescu F, Post S, Horisberger K. Ischemic and injured bowel evaluation by Fluorescence imaging. *Colorectal Disease*© 2015. The Association of Coloproctology of Great Britain and Ireland. 17 (Suppl. 3), 12–15.
58. Gossedge G, Vallance A, Jayne D. Diverse applications for near infra-red intraoperative imaging. *Colorectal Disease*© 2015 The Association of Coloproctology of Great Britain and Ireland. 17 (Suppl. 3), 7–11.
59. Fengler J. Near-infrared fluorescence laparoscopy – technical description of PINPOINT a novel and commercially available system. *Colorectal Disease*© 2015. The Association of Coloproctology of Great Britain and Ireland. 17 (Suppl. 3), 3-6.
60. Stamos MJ. Enhanced imaging. *Colorectal Disease*© 2015. The Association of Coloproctology of Great Britain and Ireland. 17 (Suppl. 3), 1–2. 49. Bae SU, Min BS, Kim NK. Robotic Low Ligation of the Inferior Mesenteric Artery for Rectal Cancer Using the Firefly Technique.

61. Zehetner J, DeMeester SR, Alicuben ET, Oh DS, Lipham JC, Hagen JA, DeMeester TR. Intraoperative Assessment of Perfusion of the Gastric Graft and Correlation With Anastomotic Leaks After Esophagectomy. Ann Surg. Vol 262, No 1, July 2015.
62. Kim JC, Lee JL, Yoon YS, Alotaibi AM, Kim J. Utility of indocyanine-green fluorescent imaging during robot-assisted sphincter-saving surgery on rectal cancer patients. Int J Med Robotics Comput Assist Surg. 2015.
63. Ris F, Yeung T, Hompes R, Mortensen NJ. Enhanced Reality and Intraoperative Imaging in Colorectal Surgery. Clinics in Colon and Rectal Surgery. Vol 28, No 3/2015.
64. Kin C, Vo H, Welton L, Welton M. Equivocal Effect of Intraoperative Fluorescence Angiography of Colorectal Anastomotic Leaks. Diseases of the Colon & Rectum. Vol 58: 6 (2015).
65. Fikfak V, Gaur P, Kim MP. Endoscopic evaluation of gastric conduit perfusion in minimally invasive Ivor Lewis esophagectomy. International Journal of Surgery Case Reports. 19 (2016) 112-114.
66. Johnson EK, Hardin MO, Walker AS, Hatch Q, Steele SR. Fluorescence Angiography in Colorectal Resection. Dis Colon Rectum 2016; 59: e1-e4.
67. Ryu S, Yoshida M, Hironori O, Tsursui N, Suzuki N, Ito E, Nakajima K, Yanagisawa S, Kitajima M, Suzuki Y. Intraoperative ICG fluorescence contrast imaging of the main artery watershed area in colorectal cancer surgery: Report of a case. International Journal of Surgery Case Reports. 26 (2016) 176-178.
68. Chadi SA, Fingerhut A, Berho M, DeMeester SR, Fleshman JW, Hyman NH, Margolin DA, Martz JE, McLemore EC, Molena D, Newman MI, Rafferty JF, Safar B, Senagore AJ, Zmora O, Wexner SD. Emerging Trends in the Etiology, Prevention, and Treatment of Gastrointestinal Anastomotic Leakage. J Gastrointest Surg. Published online Sept. 2016.
69. Vallance A, Wexner S, Berho M, Cahill R, Coleman M, Haboubi N, Heald RJ, Kennedy RH, Moran B, Mortensen N, Motson RW, Novell R, O'Connell PR, Ris F, Rockall T, Senapati A, Windsor A, Jayne DG. A collaborative review of the current concepts and challenges of anastomotic leaks in colorectal surgery. Colorectal Disease. Colorectal Dis. 2017 Jan;19(1):O1-O12. doi: 10.1111/codi.13534.
70. Ryu S, Yoshida M, Ohdaira H, Tsutsui N, Suzuki N, Ito E, Nakajima K, Yanagisawa S, Kitajima M, Suzuki Y. A case of incarcerated femoral hernia with intestinal blood flow assessment by bright field full-color near-infrared fluorescence camera: Report of a case. International Journal of Surgery Case Reports 29 (2016) 234–236. Open Access. doi.org/10.1016/j.ijscr.2016.11.041.
71. Karampinis, I., Ronellenfitsch, U., Mertens, C., Gerken, A., Hetjens, S., Post, S., & ... Nowak, K. (2017). Case Report: Indocyanine green tissue angiography affects anastomotic leakage after esophagectomy. A retrospective, case-control study. International Journal Of Surgery, doi:10.1016/j.ijsu.2017.11.001
72. Sujatha-Bhaskar S, Jarari MD, Stamos MJ. The Role of Fluorescent Angiography in Anastomotic Leaks. Surgical Technology International. Vol 30, 2017

General Surgery

73. Hagen ME, Diaper J, Douissard J, Jung MK, Buehler L, Aldenkortt F, Barcelos GK, Morel P. Early Experience with Intraoperative Leak Test Using a Blend of Methylene Blue and Indocyanine Green During Robotic Gastric Bypass Surgery. *Obes Surg.* 2019 Jan 3. doi: 10.1007/s11695-018-03625-2.
74. Gálvez-Pastor S, Torregrosa NM, Ríos A, Febrero B, González-Costeia R, García-López MA, Balsalobre MD, Pastor-Pérez P, Moreno P, Vázquez-Rojas JL, Rodríguez JM. Prediction of hypocalcemia after total thyroidectomy using indocyanine green angiography of parathyroid glands: A simple quantitative scoring system. *Am J Surg.* 2019 Jan 4. pii: S0002-9610(18)31264-9. doi: 10.1016/j.amjsurg.2018.12.074.
75. Tsutsui N, Yoshida M, Ito E, Ohdaira H, Kitajima M, Suzuki Y. Laparoscopic cholecystectomy using the PINPOINT® Endoscopic Fluorescence Imaging System with intraoperative fluorescent imaging for acute cholecystitis: A case report. *Ann Med Surg (Lond).* 2018 Sep 21;35:146-148. doi: 10.1016/j.amsu.2018.09.019.
76. Karampinis I, Di Meo G, Gerken A, Stasiunaitis V, Lammert A, Nowak K. Intraoperative Indocyanine Green Fluorescence to Assure Vital Parathyroids in Thyroid Resections. *Zentralbl Chir.* 2018 Aug;143(4):380-384. doi: 10.1055/a-0655-7881. Epub 2018 Aug 22.
77. Farag S, Frazzini Padilla P, Smith KA, Flyckt R, Sprague ML, Zimberg SE. Fallopian tube perfusion in ex-vivo and in-vivo laparoscopic hysterectomy specimens: potential application for uterine transplantation. *Hum Reprod.* 2018 Dec 1;33(12):2232-2240. doi: 10.1093/humrep/dey307.
78. Rudin AV, McKenzie TJ, Thompson GB, Farley DR, Lyden ML. Evaluation of Parathyroid Glands with Indocyanine Green Fluorescence Angiography After Thyroidectomy. *World J Surg.* 2019 Jan 18. doi: 10.1007/s00268-019-04909-z.
79. Rho, S. Y., Kim, J. S., Chong, J. U., Hwang, H. K., Yoon, D. S., Lee, W. J., & Kang, C. M. (2018). Indocyanine Green Perfusion Imaging-Guided Laparoscopic Pancreaticoduodenectomy: Potential Application in Retroperitoneal Margin Dissection. *Journal Of Gastrointestinal Surgery: Official Journal Of The Society For Surgery Of The Alimentary Tract,* doi:10.1007/s11605-018-3760-7
80. LaMattina, J. C., Alvarez-Casas, J., Lu, I., Powell, J. M., Sultan, S., Phelan, M. W., & Barth, R. N. (2018). Transplantation/Immunology: Robotic-assisted single-port donor nephrectomy using the da Vinci single-site platform. *Journal Of Surgical Research,* 22234-38. doi:10.1016/j.jss.2017.09.049
81. Kawasaki, Y., Maemura, K., Kurahara, H., Mataki, Y., Iino, S., Sakoda, M., & ... Natsugoe, S. (2018). Usefulness of fluorescence vascular imaging for evaluating splenic perfusion. *ANZ Journal Of Surgery,* doi:10.1111/ans.1436462.
82. Buchs NC, Hagen ME, Pugin, F, Volonte F, Bucher P, Schiffer E, Morel P. Intra-operative fluorescent cholangiography using indocyanin green during robotic single site cholecystectomy. *Int J Med Robot.* 2012 Dec;8(4):436-40. doi: 10.1002/rcs.1437. Epub 2012 May 31.
83. Wang HD, Singh DP. Case Report: The use of indocyanine green angiography to prevent wound complications in ventral hernia repair with open components separation technique. *Hernia.* 2013 Jun;17(3):397-402. doi: 10.1007/s10029-012-0935-0. Epub 2012 Jun 20.

84. Sherwinter DA. Identification of Anomalous Biliary Anatomy Using Near-Infrared Cholangiography. *J Gastrointest Surg.* (2012) Jul 3, 16:1814-1815.
85. Spinoglio G, Priora F, Bianchi PP, Lucido FS, Licciardello A, Maglione V, Grosso F, Quarati R, Ravazzoni F, Lenti LM. Real-time near-infrared (NIR) fluorescent cholangiography in singlesite robotic cholecystectomy (SSRC): a single-institutional prospective study. *Surg Endosc.* 2012 Dec 28.
86. Patel KM, Bhanot P, Franklin B, Albino F, Nahabedian MY. Use of intraoperative indocyanin-green angiography to minimize wound healing complications in abdominal wall reconstruction. *J Plast Surg Hand Surg*, 2013; Early Online: 1–5 ©2013 Informa Healthcare.
87. Daskalaki D, Fernandes E, Wang X, Bianco FM, Elli EF, Ayloo S, Masrur M, Milone L, Giulianotti PC. Indocyanine Green (ICG) Fluorescent Cholangiography During Robotic Cholecystectomy: Results of 184 Consecutive Cases in a Single Institution. *Surg Innov.* 2014 Dec;21(6):615-21. doi: 10.1177/1553350614524839. Epub 2014 Mar 9.
88. Cho J, May A, Ryan H, Tsuda S. Intraoperative use of fluorescent imaging with indocyanine green changes management of abdominal wall flaps during open ventral hernia repair. *Surg Innov.* 2014 Dec;21(6):615-21. doi: 10.1177/1553350614524839. Epub 2014 Mar 9.
89. Kono Y, Ishizawa T, Tani K, Harada N, Kaneko J, Saiura A, Bandai Y, Kokudo N. Techniques of Fluorescence Cholangiography During Laparoscopic Cholecystectomy for Better Delineation of the Bile Duct Anatomy. *Medicine.* Vol 94, No 25, June 2015.
90. Colavita PD, Wormer BA, Belyansky I, Lincourt A, Getz SB, Heniford BT, Augenstein VA. Intraoperative indocyanine green fluorescence angiography to predict wound complications in complex ventral hernia repair. *Hernia.* 2016 Feb;20(1):139-49. doi: 10.1007/s10029-015-1411-4. Epub 2015 Aug 18.
91. Chakredis JM, Maser C, Brumund KT, Bouvet M. Case Report – Indocyanine green fluorescence-guided redo parathyroidectomy. *BMJ Case Rep.* 2015 Sep 2;2015. pii: bcr2015211778. doi: 10.1136/bcr-2015-211778.
92. Kahramangil B, Berber E. Comparison of indocyanine green fluorescence and parathyroid autofluorescence imaging in the identification of parathyroid glands during thyroidectomy. *Gland Surg* 2017;6(6):644-648. doi: 10.21037/gs.2017.09.04.
93. Sound S, Okoh A, Yigitbas H, Yazici P, Berber E. Utility of Indocyanine Green Fluorescence Imaging for Intraoperative Localization in Reoperative Parathyroid Surgery. *Surg Innov.* 2015 Oct 27. pii: 1553350615613450.
94. Delong JC, Chakredis JM, Hosseini A, Kelly KJ, Horgan S, Bouvet M. Indocyanine Green (ICG) Fluorescence-Guided Laparoscopic Adrenalectomy. *J. Surg. Oncol.* 2015;112:650–653.
95. Fortuny JV, Belfontali V, Sadowski SM, Karenovics W, Guigard S, Triponez F. Parathyroid gland angiography with indocyanine green fluorescence to predict parathyroid function after thyroid surgery. *Br J Surg.* 2016 Apr;103(5):537-43. doi: 10.1002/bjs.10101. Epub 2016 Feb 11.
96. Zarrinpar A, Dutson EP, Mobley C, Busuttil RW, Lewis CE, Tillou A, Cheaito A, Hines OJ, Agopian VG, Hiyama DT. Intraoperative Laparoscopic Near-Infrared Fluorescence Cholangiography to Facilitate Anatomical Identification: When to Give Indocyanine Green and

How Much. Surg Innov. 2016 Aug;23(4):360-5. doi: 10.1177/1553350616637671. Epub 2016 Mar 9.

97. Vidal Fortuny, J., Sadowski, S. M., Belfontali, V., Guigard, S., Poncet, A., Ris, F., & ... Triponez, F. (2018). Randomized clinical trial of intraoperative parathyroid gland angiography with indocyanine green fluorescence predicting parathyroid function after thyroid surgery. *The British Journal Of Surgery*, doi:10.1002/bjs.10783
98. Tsutsui N, Yoshida M, Kitajima M, Suzuki Y. Laparoscopic cholecystectomy using the PINPOINT endoscopic fluorescence imaging system with intraoperative fluorescent imaging: A case report. *International Journal of Surgery Case Reports* 21 (2016) 129-132.
99. Fortuny JV, Karenovics W, Triponez F, Sadowski SM. Intra-Operative Indocyanine Green Angiography of the Parathyroid Gland. *World J Surg* (2016) 40:2378–2381. DOI 10.1007/s00268-016-3493-2
100. Zaidi N, Bucak E, Okoh A, Yazici P, Yigitbas H, Berber E. The Utility of Indocyanine Green Near Infrared Fluorescent Imaging in the Identification of Parathyroid Glands During Surgery for Primary Hyperparathyroidism. *J Surg Oncol*. 2016 Jun;113(7):771-4. doi: 10.1002/jso.24240. Epub 2016 Apr 4.
101. Zaidi N, Bucak E, Yazici P, Soundararajan S, Okoh A, Yigitbas H, Dural C, Berber E. The Feasibility of Indocyanine Green Fluorescence Imaging for Identifying and Assessing the Perfusion of Parathyroid Glands During Total Thyroidectomy. *J Surg Oncol*. 2016 Jun;113(7):775-8. doi: 10.1002/jso.24237. Epub 2016 Apr 4.
102. Wormer BA, Huntington CR, Ross SW, Colavita PD, Lincourt AE, Prasad T, Sing RF, Getz SB, Belyansky I, Heniford BT, Augenstein VA. A prospective randomized double-blinded controlled trial evaluating indocyanine green fluorescence angiography on reducing wound complications in complex abdominal wall reconstruction. *Journal of Surgical Research*. May 2016 (202) 461-472.
103. Zroback C, Chow G, Meneghetti A, Warnock G, Meloche M, Chie CJ, Panton ON. Fluorescent cholangiography in laparoscopic cholecystectomy: the initial Canadian experience. *Am J Surg*. Vol 211, No 5, May 2016.
104. Tsutsui, N., Yoshida, M., Nakagawa, H., Ito, E., Iwase, R., Suzuki, N., & ... Suzuki, Y. (2017). Optimal timing of preoperative indocyanine green administration for fluorescent cholangiography during laparoscopic cholecystectomy using the PINPOINT® Endoscopic Fluorescence Imaging System. *Asian Journal Of Endoscopic Surgery*, doi:10.1111/ases.12440
105. Starker, P. M., & Chinn, B. (2017). Using outcomes data to justify instituting new technology: a single institution's experience. *Surgical Endoscopy*, doi:10.1007/s00464-017-6001-3
106. Fortuny JV, Sadowski SM, Belfontali V, Karenovics W, Guigard S, Triponez F. Indocyanine Green Angiography in Subtotal Parathyroidectomy: Technique for the Function of the Parathyroid Remnant. *JACS*. Vol 223, No 5, November 2016. Open Access doi. org/10.1016/j.jamcollsurg.2016.08.540.
107. Yu HW, Chung JW, Yi JW, Song R-Y, Lee J-H, Kwon H, Kim S-J, Chai YJ, Choi JY, Lee KE. Intraoperative localization of the parathyroid glands with indocyanine green and Firefly(R) technology during BABA robotic thyroidectomy. *Surg Endosc*. Published online Nov 2016. DOI 10.1007/s00464-016-5330-y.

108. Ryu Shunjin, Yoshida M, Ohdaira H, Tsutsui N, Suzuki N, Ito E, Nakajima K, Yanagisawa S, Kitajima M, Suzuki Y. Blood flow evaluation using PINPOINT® in a case of incarcerated inguinal hernia: A case report. *Asian J Endosc Surg*. 2016. DOI: 10.1111/ases.12333.
109. Kim, S. W., Lee, H. S., & Lee, K. D. (2017). Intraoperative real-time localization of parathyroid gland with near infrared fluorescence imaging. *Gland Surgery*, 6(5), 516–524. <http://doi.org/10.21037/gs.2017.05.08>
110. DeLong, J. C., Ward, E. P., Lwin, T. M., Brumund, K. T., Kelly, K. J., Horgan, S., & Bouvet, M. (2017). Society of University Surgeons: Indocyanine green fluorescence-guided parathyroidectomy for primary hyperparathyroidism. *Surgery*, doi:10.1016/j.surg.2017.08.018
111. Kahramangil B, Berber E. The use of near-infrared fluorescence imaging in endocrine surgical procedures. *J Surg Oncol*. 2017; 9999:1–8. DOI 10.1002/jso.24583
112. Arora E, Bhandarwar A, Wagh A, Gandhi S, Patel C, Gupta S, Talwar G, Agarwal J, Rathore J, Chatnalkar S. Role of indo-cyanine green (ICG) fluorescence in laparoscopic adrenalectomy: a retrospective review of 55 Cases. *Surg Endosc*. 2018 Jun 25. doi: 10.1007/s00464-018-6309-7.

Liver and Hepatobiliary Surgery

113. Ambe PC, Plambeck J, Fernandez-Jesberg V, Zarras K. The role of indocyanine green fluoroscopy for intraoperative bile duct visualization during laparoscopic cholecystectomy: an observational cohort study in 70 patients. *Patient Saf Surg*. 2019 Jan 12;13:2. doi: 10.1186/s13037-019-0182-8. eCollection 2019.
114. Sekijima M, Tojimbara T, Sato S, Nakamura M, Kawase T, Kai K, Urashima Y, Nakajima I, Fuchinoue S, Teraoka S. An Intraoperative Fluorescent Imaging System in Organ Transplantation. *Transplantation Proceedings* 2004; 36(7):2188-2190.
115. Kubota K, Kita J, Shimoda M, Rokkaku K, Kato M, Iso Y, Sawada T. Intraoperative assessment of reconstructed vessels in living-donor liver transplantation, using a novel fluorescence imaging technique. *Journal of Hepatobiliary Pancreatic Surgery* 2006; 13:100-104.
116. Sanchez EQ, Chinnakotla S, Khan T, Nikitin D, Vasani S, Randall HB, McKenna GJ, Ruiz R, Onaca N, Levy MF, Goldstein RM, Docherty JC, Hurd DK, Klitmalm GB. Intraoperative imaging of pancreas transplant allografts using indocyanine green with laser fluorescence. *Proceedings (Baylor University Medical Center)* 2008; 21(3):258-260.
117. Garcia-Roca R, Walczak D, Tzvetanov I, Khan A, Oberholzer J. The Application of Indocyanine Green to Evaluate Duodenal Perfusion in Pancreas Transplantation. *American Journal of Transplantation*. 14: 227-228. 2014.
118. Rother U, Gerken ALH, Karampinis I, Klumpp M, Regus S, Meyer A, Apel H, Kramer BK, Hilgers K, Lang W, Nowak K. Dosing of indocyanine-green for intraoperative laser fluorescence angiography in kidney transplantation. *Microcirculation*. 2017 Nov;24(8). doi: 10.1111/micc.12392.
119. Bozzay J, Vicente D, Jessie EM, Rodriguez CJ. Identification of Abnormal Biliary Anatomy Utilizing Real-Time Near-Infrared Cholangiography: A report of Two Cases. *Case Reports in Gastrointestinal Medicine*. Volume 2017. DOI: 10.1155/2017/8628206

120. Hong SK, Lee KW, Kim HS, Yoon KC, Ahn SW, Choi JY, Kim H, Yi NJ, Suh KS . Optimal bile duct division using real-time indocyanine green near-infrared fluorescence cholangiography during laparoscopic donor hepatectomy. *Liver Transpl.* 2017 Jun;23(6):847-852. doi: 10.1002/lt.24686.
121. Rother U, Amann K, Adler W, Nawroth N, Karampinis I, Keese M, Manap S, Regus S, Meyer A, Porubsky S, Hilgers K, Krämer BK, Lang W, Nowak K, Gerken ALH. Quantitative assessment of microperfusion by indocyanine green angiography in kidney transplantation resembles chronic morphological changes in kidney specimens. *Microcirculation.* 2019 Jan 17:e12529. doi: 10.1111/micc.12529.
122. Meng X, Wang H, Xu Y, Chen M, Duan W, Lu S. Indocyanine green fluorescence image-guided total laparoscopic living donor right hepatectomy: The first case report from Mainland China. *Int J Surg Case Rep.* 2018;53:406-409. doi: 10.1016/j.ijscr.2018.11.033.
123. Sharma S, Huang R, Hui S, Smith MC, Chung PJ, Schwartzman A, Sugiyama G. The utilization of fluorescent cholangiography during robotic cholecystectomy at an inner-city academic medical center. *J Robot Surg.* 2018 Sep;12(3):481-485. doi: 10.1007/s11701-017-0769-y.

Plastic and Reconstructive Surgery

124. Xue EY, Schultz JJ, Therattil PJ, Keith JD, Granick MS. Indocyanine Green Laser Angiography in the Setting of Tumescence. *Eplasty.* 2019 Jan 7;19:e1. eCollection 2019.
125. Abdelwahab M, Kandathil CK, Most SP, Spataro EA. Utility of Indocyanine Green Angiography to Identify Clinical Factors Associated With Perfusion of Paramedian Forehead Flaps During Nasal Reconstruction Surgery. *JAMA Facial Plast Surg.* 2019 Jan 31. doi: 10.1001/jamafacial.2018.1829.
126. Odom EB, Parikh RP, Um G, Kantola SW, Cyr AE, Margenthaler JA, Tenenbaum MM, Myckatyn TM. Nipple-Sparing Mastectomy Incisions for Cancer Extirpation Prospective Cohort Trial: Perfusion, Complications, and Patient Outcomes. *Plast Reconstr Surg.* 2018 Jul;142(1):13-26. doi: 10.1097/PRS.0000000000004498.
127. Abdelwahab M, Spataro EA, Kandathil CK, Most SP. Neovascularization Perfusion of Melolabial Flaps Using Intraoperative Indocyanine Green Angiography. *JAMA Facial Plast Surg.* 2019 Feb 7. doi: 10.1001/jamafacial.2018.1874.
128. Diep GK, Marmor S, Kizy S, Huang JL, Jensen EH, Portschy P, Cunningham B, Choudry U, Tuttle TM, Hui JY. The use of indocyanine green angiography in postmastectomy reconstruction: Do outcomes improve over time? *J Plast Reconstr Aesthet Surg.* 2019 Jan 7. pii: S1748-6815(19)30002-6. doi: 10.1016/j.bjps.2018.12.037.
129. Niels Hammer-Hansen, Alexander Andersen Juhl & Tine Engberg Damsgaard(2018) Laser-assisted indocyanine green angiography in implant-based immediate breast reconstruction: a retrospective study, *Journal of Plastic Surgery and Hand Surgery,* 52:3, 158-162, DOI: 10.1080/2000656X.2017.1372289.
130. Aung T, Heidekrueger PI, Geis S, Von Kunow F, Taeger C, Strauss C, Wendl C, Brebant V, Prantl L, Hillmann A. A novel indication for indocyanine green (ICG): Intraoperative monitoring of limb and sciatic nerve perfusion during rotationplasty for sarcoma patients. *Clin Hemorheol Microcirc.* 2018 Oct 15. doi: 10.3233/CH-189309.

131. Mirhaidari SJ, Beddell GM, Orlando MV, Parker MG, Pedersen JC, Wagner DS. A Prospective Study of Immediate Breast Reconstruction with Laser-Assisted Indocyanine Green Angiography. *Plast Reconstr Surg Glob Open*. 2018 Sep 6;6(9):e1774. doi: 10.1097/GOX.0000000000001774.
132. Dietz MJ, Hare JT, Ueno C, Prud'homme BJ, Boyd JW. Laser-assisted Fluorescent Angiography to Assess Tissue Perfusion in the Setting of Traumatic Elbow Dislocation. *Wounds*. 2018 Oct;30(10):E93-E97.
133. Guo J1, Gao Y, Li H, Wang Z, Zan T, Li Q. Hemodynamic Assessment with SPY-Indocyanine Green Angiography in Expansion Period: A Study for Expansion Capsule Pressure Optimization. *J Craniofac Surg*. 2018 May;29(3):578-583. doi: 10.1097/SCS.0000000000004282.
134. Chattha A, Bucknor A, Chen AD, Lee BT, Lin SJ. Indocyanine Green Angiography Use in Breast Reconstruction: A National Analysis of Outcomes and Cost in 110,320 Patients. *Plast Reconstr Surg*. 2018 Apr;141(4):825-832. doi: 10.1097/PRS.0000000000004195.
135. Sigalove, S., Maxwell, G.P., Sigalove, N., Storm-Dickerson, T., Pope, N., Rice, J., Gabriel, A., Prepectoral Implant-Based Breast Reconstruction and Postmastectomy Radiotherapy: Short-Term Outcomes. *Plast Reconstr Surg Glob Open*. 2017 Dec; 5(12): e1631.
136. Zenn MR. Evaluation of skin viability in nipple sparing mastectomy (NSM). *Gland Surg* 2018;7(3):301-307. doi: 10.21037/gs.2018.04.04.
137. Toke Alstrup, Bekka O. Christensen & Tine Engberg Damsgaard (2018): ICG angiography in immediate and delayed autologous breast reconstructions: peroperative evaluation and postoperative outcomes, *Journal of Plastic Surgery and Hand Surgery*, DOI: 10.1080/2000656X.2018.1486320
138. Cleveland A, Abdelgawad A, Cook J, Pirela-Cruz M. Use of indocyanine green fluorescent dye video angiography in orthopaedic trauma: a pilot study. *J Surg Orthop Adv*. 2013 Winter;22(4):310-5.
139. Ghareeb, P., Neustein, T., Fang, R., Payne, D. (2017) Indocyanine Green Angiography: A Helpful Tool for Intraoperative Assessment of Upper Extremity Perfusion. *Tech Hand Surg* 2017;21: 101–106.
140. Yang, C., Chung, S. W., Lee, D. W., Lew, D. H., & Song, S. Y. (2018). Evaluation of the Relationship Between Flap Tension and Tissue Perfusion in Implant-Based Breast Reconstruction Using Laser-Assisted Indocyanine Green Angiography. *Annals Of Surgical Oncology*, doi:10.1245/s10434-018-6527-1Chang, C., Wu, C., Chen, C., Wang, C., Chu, T., Hsu, K., & ... Tzeng, Y. (2017). Intraoperative indocyanine green fluorescent angiography-assisted modified superior gluteal artery perforator flap for reconstruction of sacral pressure sores. *International Wound Journal*, 14(6), 1170-1174. doi:10.1111/iwj.12781
141. Chang, C., Wu, C., Chen, C., Wang, C., Chu, T., Hsu, K., & ... Tzeng, Y. (2017). Intraoperative indocyanine green fluorescent angiography-assisted modified superior gluteal artery perforator flap for reconstruction of sacral pressure sores. *International Wound Journal*, 14(6), 1170-1174. doi:10.1111/iwj.12781
142. Salman, S., Fattahi, T., Fernandes, R., & Steinberg, B. (2018). Dynamic analysis of maxillary perfusion during Le Fort I osteotomy using indocyanine green. *International Journal Of Oral And Maxillofacial Surgery*, doi:10.1016/j.ijom.2018.01.010
143. Fan, S., Zhang, H., Li, Q., Tian, T., Chen, W., Pan, G., & ... Li, J. (2018). The use of a honeycomb technique combined with ultrasonic aspirators and indocyanine green fluorescence angiography for a superthin anterolateral thigh flap: a pilot study. *Plastic And*

- Reconstructive Surgery, doi:10.1097/PRS.0000000000004411Guo, J., Gao, Y., Li, H., Wang, Z., Zan, T., & Li, Q. (2018). Hemodynamic Assessment with SPY-Indocyanine Green Angiography in Expansion Period: A Study for Expansion Capsule Pressure Optimization. *The Journal Of Craniofacial Surgery*, doi:10.1097/SCS.0000000000004282
144. Guo, J., Gao, Y., Li, H., Wang, Z., Zan, T., & Li, Q. (2018). Hemodynamic Assessment with SPY-Indocyanine Green Angiography in Expansion Period: A Study for Expansion Capsule Pressure Optimization. *The Journal Of Craniofacial Surgery*, doi:10.1097/SCS.0000000000004282
145. Pestana IA, Coan B, Erdmann D, Marcus J, Levin LS, Zenn MR. Early Experience with Fluorescent Angiography in Free-Tissue Transfer Reconstruction. *Plastic and Reconstructive Surgery* 2009; 123(4):1239-1244.
146. Newman MI, Samson MC. The Application of Laser-Assisted Indocyanine Green Fluorescent Dye Angiography in Microsurgical Breast Reconstruction. *Journal of Reconstructive Microsurgery* 2009; 25(1):21-26.
147. Murray JD, Jones GE, Elwood ET, Whitty LA, Garcia C. Fluorescent Intraoperative Tissue Angiography with Indocyanine Green: The Evaluation of Nipple-Areolar Vascularity during Breast Reduction Surgery. *Plastic and Reconstructive Surgery* 2009; 124(4 Suppl):60.
148. Jones GE, Garcia CA, Murray J, Elwood ET, Whitty LA. Fluorescent Intraoperative Tissue Angiography for the Evaluation of the Viability of Pedicled TRAM Flaps. *Plastic and Reconstructive Surgery* 2009; 124(4 Suppl):53.
149. Francisco, BS, Kerr-Valentic, MA, Agarwal, JP. Laser-Assisted Indocyanine Green Angiography and DIEP Breast Reconstruction. *Plastic and Reconstructive Surgery – Viewpoints* 2010; 125(3): 116e-118e.
150. Mohebali J, Gottlieb LJ, Agarwal JP. Further Validation for Use of the Retrograde Limb of the Internal Mammary Vein in Deep Inferior Epigastric Perforator Flap Breast Reconstruction Using Laser-Assisted Indocyanine Green Angiography. *Journal of Reconstructive Microsurgery* 2010; 26(2):131-135.
151. Komorowska-Timek E, Gurtner GC. Intraoperative Perfusion Mapping with Laser-Assisted Indocyanine Green Imaging Can Predict and Prevent Complications in Immediate Breast Reconstruction. *Plastic and Reconstructive Surgery* 2010; 125(4):1065-1073.
152. Newman MI, Samson MC, Tamburrino JF, Swartz KA., Department of Plastic Surgery, Cleveland Clinic Florida, Intraoperative laser-assisted indocyanine green angiography for the evaluation of mastectomy flaps in immediate breast reconstruction. *J Reconstr Microsurg.* 2010 Sep;26(7):487-92. Epub 2010 Jun 10.
153. Newman MI, Samson MC, Tamburrino JF, Swartz KA, Brunworth, L. An investigation of the application of laser-assisted indocyanine green fluorescent dye angiography in pedicle transverse rectus abdominus myocutaneous breast reconstruction. *Can J Plast Surg* Vol 19 No 1 Spring 2011.
154. Liu DZ, Mathes DW, Zenn MR, Neligan PC. The Application of Indocyanine Green Fluorescence Angiography in Plastic Surgery. *J Reconstr Microsurg* 2011;27:355-364.
155. Zenn MR. Fluorescent Angiography. *Clin Plastic Surg* 38 (2011) 293–300.

156. Howard, RT, Valerio, IL, Basile, PL, Nesti, L. The Use of Intraoperative Fluorescent Angiography to Maximize Fasciocutaneous Flap Coverage of Battle Field Extremity Injuries. Supplement to Plastic and Reconstructive Surgery Vol. 128, No. 4 (2011) 79-80. Abstract.
157. Woodard, CR, Most, SP. Intraoperative Angiography Using Laser-Assisted Indocyanine Green Imaging to Map Perfusion of Forehead Flaps. Arch Facial Plast Surg. Published online February 20, 2012.
158. Losken A, Zenn M, Hammel J, Walsh M, Carlson G. Assessment of Zonal Perfusion Using Intraoperative Angiography during Abdominal Flap Breast Reconstruction. Plastic and Reconstructive Surgery. Volume 129, Number 4, April 2012.
159. Phillips B, Lanier S, Conkling N, Wang E, Dagum A, Ganz J, Khan S, Bui D. Intraoperative Perfusion Techniques Can Accurately Predict Mastectomy Skin Flap Necrosis in Breast Reconstruction: Results of a Prospective Trial. Plastic and Reconstructive Surgery. Volume 129, Number 5, May 2012.
160. Moyer H, Losken A. Predicting Mastectomy Skin Flap Necrosis with Indocyanine Green Angiography: The Gray Area Defined. Plastic and Reconstructive Surgery. Volume 129, Number 5, May 2012.
161. Sacks JM, Nguyen AT, Broyles JM, Yu P, Valerio IL, Baumann DP. Near-Infrared Laser-Assisted Indocyanine Green Imaging for Optimizing the Design of the Anterolateral Thigh Flap. ePlasty. 2012;12:e30. Epub 2012 Jul 5.
162. Christensen JM, Baumann DP, Myers JN, Burett, K, Sacks, JM. Indocyanine Green Near-Infrared Laser Angiography Predicts Timing for the Division of a Forehead Flap. ePlasty. Volume 12. August 31, 2012.
163. Bank J, Pavone LA, Seitz IA, Roughton MC, Schechter LS. Case Report and Review of the Literature: Deep Inferior Epigastric Perforator Flap for Breast Reconstruction After Abdominal Recontouring. ePlasty. Volume 12. December 2012.
164. Gurtner GC, Jones GE, Neligan PC, Newman MI, Phillips BT, Sacks JM, Zenn MR. Intraoperative laser angiography using the SPY system: review of the literature and recommendations for use. Ann Surg Innov Res. 2013 Jan 7;7(1):1.
165. Shah A, Au A. Laser-Assisted Indocyanine Green Evaluation of Paramedian Forehead Flap Perfusion Prior to Pedicle Division. ePlasty. Volume 13, pgs 55-61. Feb 18, 2013.
166. Green JM , Thomas S Sabino J, Howard R, Basile P, Dryden S, Crecelius C, Valerio I. Use of Intraoperative Fluorescent Angiography to Assess and Optimize Free Tissue Transfer in Head and Neck Reconstruction. J Oral Maxillofac Surg :-1-11, 2013.
167. Chatterjee A, Krishnan NM, Phil M, Van Vliet MM, Powell SG, Rosen JM, Ridgway EB. A Comparison of Free Autologous Breast Reconstruction with and without the Use of Laser-Assisted Indocyanine Green Angiography: A Cost-Effectiveness Analysis. Plast. Reconstr. Surg. 131: 693e, 2013.
168. Garvey P, Selber JC, Hobaug CW, Zhang H, Butler CE, Baumann DP. Abstract – 50 – Tissue expander breast reconstructions experience fewer complications when skin flaps are assessed with laser fluorescent angiography rather than clinical judgement alone. PSRC Abstract Supplement. 131: 5 May 2013.
169. Sood M, Glat P. Potential of the SPY intraoperative perfusion assessment system to reduce ischemic complications in immediate

- postmastectomy breast reconstruction. Annals of Surgical Innovation and Research. 2013, 7:9 <http://www.asir-journal.com/content/7/1/9>.
170. Newman MI, Jack MC, Samson MC. SPY-Q Analysis Toolkit Values Potentially Predict Mastectomy Flap Necrosis. Annals of Plastic Surgery. Vol 70, Number 5, May 2013.
171. Wapnir I, Dua M, Kieryn A, Paro J, Morrison D, Kahn D, Meyer S, Gurtner G. Intraoperative Imaging of Nipple Perfusion Patterns and Ischemic Complications in Nipple-Sparing Mastectomies. Ann Surg Oncol. 21:100-106. January 2014.
172. Janes LE, Hui-Chou HG, Matthews JA, Sabino J, Singh DP. Utilization of Near-infrared Indocyanine Green Angiography for Immediate and Delayed Venous Outflow Assessment in Breast Reconstruction: A Case Report. Plast Reconstr Surg Glob Open 2014;2:e100; Published online 28 January 2014.
173. Duggal CS, Madni T, Losken A. An Outcome Analysis of Intraoperative Angiography for Postmastectomy Breast Reconstruction. Aesthetic Surgery Journal 2014 34: 61.
174. Munabi NCO, Olorunnipa OB, Goltsman D, Rohde CH, Ascherman JA. The ability of intra-operative perfusion mapping with laser-assisted indocyanine green angiography to predict mastectomy flap necrosis in breast reconstruction: A prospective trial. J of Plast, Reconstr & Aesthetic Surg (2014).
175. Kanuri A, Liu AS, Guo L. Whom Should We SPY? A Cost Analysis of Laser-Assisted Indocyanine Green Angiography in Prevention of Mastectomy Skin Flap Necrosis during Prosthesis-Based Breast Reconstruction. Plast Reconstr Surg. Volume 133, Number 4, 448e-454e. April 2014.
176. Pestana IA, Zenn MR. Correlation between Abdominal Perforator Vessels Identified with Preoperative Computed Tomography Angiography and Intraoperative Fluorescent Angiography in the Microsurgical Breast Reconstruction Patient. Annals of Plastic Surgery. Vol 72, Supplement 2, June 2014.
177. Lee LN, Smith DF, Boahene KD, Byrne PJ. Intraoperative Laser-Assisted Indocyanine Green Imaging for Objective Measurement of the Vascular Delay Technique in Locoregional Head and Neck Flaps. JAMA Facial Plast Surg. doi:10.1001/jamafacial.2014.106 Published online June 5, 2014.
178. Wyles CC, Taunton MJ, Jacobson SR, Tran NV, Sierra RJ, Trousdale RT. Intraoperative Angiography Provides Objective Assessment of Skin Perfusion in Complex Knee Reconstruction. Clinical Orthopaedics and Related Research®. Clin Orthop Relat Res. 2015 Jan;473(1):82-9. doi: 10.1007/s11999-014-3612-z.
179. Fourman MS, Phillips BT, Fritz JR, Conkling N, McClain SA, Simon M, Dagum AB. Laser-Assisted Indocyanine Green Dye Angiography Accurately Predicts the Split-Thickness Graft Timing of Integra Artificial Dermis. Annals of Plastic Surgery. Vol 73, No 2, August 2014.
180. Phillips BT, Fourman MS, Rivara A, Dagum AB, Huston TL, Ganz JC, Bui DT, Khan SU. Comparing Quantitative Values of Two Generations of Laser-Assisted Indocyanine Green Dye Angiography Systems: Can We Predict Necrosis? ePlasty. Vol 14: 367-377. December 5, 2014.

181. Monahan J, Hwang BH, Kennedy JM, Chen W, Nguyen GK, Schooler WG, Wong AK. Determination of a Perfusion Threshold in Experimental Perforator Flap Surgery Using Indocyanine Green Angiography. *Ann Plast Surg* 2014; 73: 602-606.
182. Popiel B, Gupta D, Misra S. Value of an intraoperative real time tissue perfusion assessment system following a nipple-sparing radical mastectomy for advanced breast cancer. *International Journal of Surgery Case Reports* 5 (2014) 30-33.
183. Green JM, Sabino J, Fleming M, Valerio I. Intraoperative Fluorescence Angiography: A Review of Applications and Outcomes in War-Related Trauma. *Military Medicine*, Vol. 180, March Supplement 2015.
184. Wang, C., Wang, C., Tzeng, Y., Lin, C., Chou, C., Chiang, I., & ... Chen, S. (2018). Intraoperative Assessment of the Relationship Between Nipple Circulation and Incision Site in Nipple-Sparing Mastectomy With Implant Breast Reconstruction Using the SPY Imaging System. *Annals Of Plastic Surgery*, doi:10.1097/SAP.0000000000001296
185. Strauss, C., Brix, E., Anker, A., Prantl, L., Brébant, V., & Aung, T. (2017). Perfusion control of a partial revascularized hand via application of Indocyanine green (ICG) and Near-infrared Fluorescence Imaging. *Clinical Hemorheology & Microcirculation*, 67(3/4), 215-219. doi:10.3233/CH-179202
186. Valerio I, Green JM, Sacks JM, Thomas S, Sabino J, Acaturk TO. Vascularized Osseous Flaps and Assessing Their Bipartate Perfusion Pattern via Intraoperative Fluorescence Angiography. *J Reconstr Microsurg* 2015;31:45-53.
187. Taylor SR, Jorgensen JB. Use of Fluorescent Angiography to Assess Donor Site Perfusion Prior to Free Tissue Transfer. *The Laryngoscope*. 2015.
188. Hagopian TM, Ghareeb PA, Arslanian BH, Moosavi BL, Carlson GW. Case Report – Breast Necrosis Secondary to Vasopressor Extravasation: Management Using Indocyanine Green Angiography and Omental Flap Closure. *The Breast Journal*. 2015 1-4.
189. Casey WJ, Connolly KA, Nanda A, Rebecca AM, Perdikis G, Smith AA. Indocyanine Green Laser Angiography Improves Deep Inferior Epigastric Perforator Flap Outcomes following Abdominal Suction Lipectomy. *Plastic and Reconstructive Surgery*. Vol 135, No 3, March 2015.
190. Surowitz JB, Most SP. Use of Laser-Assisted Indocyanine Green Angiography for Early Division of the Forehead Flap Pedicle. *JAMA Facial Plastic Surgery*. Published online April 2015.
191. Dua MM, Bertoni DM, Nguyen D, Meyer S, Gurther GC, Wapnir IL. Using intraoperative laser angiography to safeguard nipple perfusion in nipple-sparing mastectomies. *Gland Surg*. 2015 Dec;4(6):497-505. doi: 10.3978/j.issn.2227-684X.2015.04.15.
192. Harless C, Jacobson SR. Current strategies with 2-staged prosthetic breast reconstruction. *Gland Surgery*, Vol 4, No 3 June 2015.
193. Fourman MS, Gersch RP, Phillips BT, Nasser A, Rivara A, Verma R, Dagum AB, Rosengart TK, Bui DT. Comparison of Laser Doppler and Laser-Assisted Indocyanine Green Angiography Prediction of Flap Survival in a Novel Modification of the McFarlane Flap. *Annals of Plastic Surgery*. Vol 75, No 1, July 2015.
194. Beckler AD, Ezzat WH, Seth R, Nabill V, Blackwell KE. Assessment of Fibula Flap Skin Perfusion in Patients Undergoing Oromandibular

- Reconstruction – Comparison of Clinical Findings, Fluorescein, and Indocyanine Green Angiography. *JAMA Facial Plast Surg.* 2015 Nov-Dec;17(6):422-6. doi: 10.1001/jamafacial.2015.0961.
195. Phillips BT, Munabi NCO, Roeder RA, Ascherman JA, Guo L, Zenn MR. The Role of Intraoperative Perfusion Assessment: What is the Current State and How Can I Use It in My Practice? *Plastic and Reconstructive Surgery*. February 2016.
196. Harless CA, Jacobson SR. Tailoring through Technology: A Retrospective Review of a Single Surgeon's Experience with Implant-Based Breast Reconstruction before and after Implementation of Laser-Assisted Indocyanine Green Angiography. *Breast J.* 2016 May;22(3):274-81. doi: 10.1111/tbj.12576. Epub 2016 Feb 21.
197. Griffiths M, Chae MP, Rozen WM. Indocyanine green-based fluorescent angiography in breast reconstruction. *Gland Surg* 2016;5(2):133-149.
198. Chang EI, Kronowitz SJ. Dual-Pedicle Flap for Unilateral Autologous Breast Reconstruction Revisited: Evolution and Optimization of Flap Design over 15 Years. *Plastic and Reconstructive Surgery*, Vol 137, No 5. May 2016.
199. Bertoni DM, Nguyen D, Rochlin D, Hernandez-Boussard T, Meyer S, Choy N, Gurtner GC, Wapnir IL. Protecting Nipple Perfusion by Devascularization and Surgical Delay in Patients at Risk for Ischemic Complications During Nipple-Sparing Mastectomies. *Ann Surg Oncol.* 2016 Aug;23(8):2665-72. doi: 10.1245/s10434-016-5201-8. Epub 2016 Apr 1.
200. Ludolph I, Arkudas A, Schmitz M, Boos AM, Taeger CD, Rother U, Horch RE, Beier JP. Cracking the perfusion code?: Laser-assisted Indocyanine Green angiography and combined laser Doppler spectrophotometry for intraoperative evaluation of tissue perfusion in autologous breast reconstruction with DIEP or ms-TRAM flaps. *Journal of Plastic, Reconstructive & Aesthetic Surgery.* 69, 1382-1388, 2016. doi:10.1016/j.bjps.2016.07.014.
201. Nahabedian MY. Implant-Based Breast Reconstruction: Strategies to Achieve Optimal Outcomes and Minimize Complications. *Journal of Surgical Oncology* 2016; 113:895-905.
202. Diep GK, Ching Hui JY, Marmor S, Cunningham BL, Choudry U, Portschy PR, Tuttle TM. Postmastectomy Reconstruction Outcomes After Intraoperative Evaluation with Indocyanine Green Angiography Versus Clinical Assessment. *Ann Surg Oncol* (2016) 23: 4080. <https://doi.org/10.1245/s10434-016-5466-y>.
203. Mattison GL, Lewis PG, Gupta SC, Kim HY. SPY Imaging Use in Postmastectomy Breast Reconstruction Patients: Preventative or Overly Conservative? *Plastic and Reconstructive Surgery*. July 2016.
204. Maxwell AK, Deleyiannis F W-B, MPhil. Utility of Indocyanine Green Angiography in Arterial Selection during Free Flap Harvest in Patients with Severe Peripheral Vascular Disease. *PRS Global Open.* Published online October 2016. Open Access. DOI:10.1097/GOX.0000000000001097
205. McCabe, J., Guevara, C., Renfroe, J., Fattahi, T., Salman, S., & Steinberg, B. (2017). Clinical Paper: Quantitative analysis of facial soft tissue perfusion during hypotensive anesthesia using laser-assisted indocyanine green fluorescence angiography. *International Journal Of Oral & Maxillofacial Surgery*, doi:10.1016/j.ijom.2017.10.003

206. Venturi ML, Mesbahi AN, Copeland-Halperin LR, Suh VY, Yemc L. SPY Elite's Ability to Predict Nipple Necrosis in Nipple-Sparing Mastectomy and Immediate Tissue Expander Reconstruction. *Plast Reconstr Surg Glob Open*. 2017;5:e1334. doi: 10.1097/GOX.0000000000001334
207. Beran BD, Shockley M, Arnolds K, Escobar P, Zimberg S, Sprague ML. Laser angiography with indocyanine green (ICG) to assess vaginal cuff perfusion during total laparoscopic hysterectomy (TLH): A pilot study. *The Journal of Minimally Invasive Gynecology* (2017), doi: 10.1016/j.jmig.2016.12.021.
208. Han MD, Miloro M, Markiewicz MR. Laser-Assisted Indocyanine Green Imaging for Assessment of Perioperative Maxillary Perfusion During Le Fort I Osteotomy: A Pilot Study. *J Oral Maxillofac Surg*. 2018 Jun 2. pii: S0278-2391(18)30502-0. doi: 10.1016/j.joms.2018.05.027.

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209. Perry D, Bharara M, Armstrong DG, Mills J. Intraoperative Fluorescence Vascular Angiography: During Tibial Bypass. *Journal of Diabetes Science and Technology*. Volume 6, Issue 1, January 2012.
210. Braun JD, Trinidad-Hernandez M, Perry D, Armstrong DG, Mills JL. Early quantitative evaluation of indocyanine green angiography in patients with critical limb ischemia. *J Vasc Surg* 2013;-:1-6.
211. Xue, E. Y., Chandler, L. K., Viviano, S. L., & Keith, J. D. (2018). Use of FLIR ONE Smartphone Thermography in Burn Wound Assessment. *Annals Of Plastic Surgery*, doi:10.1097/SAP.0000000000001363.
212. Brooks D. Perfusion Assessment with the SPY System after Arterial Venous Reversal for Upper Extremity Ischemia. *Plast Reconstr Surg Glob Open*. 2014 Aug 7;2(7):e185. doi: 10.1097/GOX.0000000000000138. eCollection 2014 Jul.
213. Benitez E, Sumpio BJ, Chin J, Sumpio BE. Contemporary assessment of foot perfusion in patients with critical limb ischemia. *Seminars in Vascular Surgery* 27 (2014) 3-15.
214. Fourman MS, Phillips BT, Crawford L, McClain SA, Lin F, Thode Jr HC, Dagum AB, Singer AJ, Clark RA. Indocyanine green dye angiography accurately predicts survival in the zone of ischemia in a burn comb model. *Burns* 40 (2014) 940-946.
215. Dissanaike S, Abdul-Hamed S, Griswold JA. Variations in burn perfusion over time as measured by portable ICG fluorescence: A case series. *Burns & Trauma*. Oct 2014. Vol 2, Issue
216. Connolly PH, Meltzer AJ, Spector JA, Schneider DB. Indocyanine green angiography aids in prediction of limb salvage in vascular trauma. *Annals of Vascular Surgery* Vol. 29, No. 7, October 2015.
217. Samies JH, Gehling M, Serena TE, Yaakov RA. Use of a fluorescence angiography system in assessment of lower extremity ulcers in patients with peripheral arterial disease: A review and a look forward. *Sem in Vasc Surg* 28 (2015) 190-194.
218. Wyles CC, Jacobson SR, Houdek MT, Larson DR, Taunton MJ, Sim FH, Sierra RJ, Trousdale RT. Running Subcuticular Closure Enables the

Most Robust Perfusion After TKA: A Randomized Clinical Trial. Clin Orthop Relat Res. Vol 474, No 1, January 2016.

219. Colvard B, Itoga NK, Hitchner E, Sun Q, Long B, Lee G, Chandra V, Zhou W. SPY Technology as an adjunctive measure for lower extremity perfusion. J Vasc Surg. 2016 Jul;64(1):195-201. doi: 10.1016/j.jvs.2016.01.039. Epub 2016 Mar 16.
220. Anghel EL, Falola RA, Kim PJ. Fluorescence Technology for Point of Care Wound Management. Surg Technol Int. 2016 Apr;28:58-64.
221. Joh JH, Park H-C, Han S-A, Ahn HJ. Intraoperative indocyanine green angiography for the objective measurement of blood flow. Annals of Surgical Treatment and Research 2016;90(5):279-286.
222. Rother U, Lang W, Horch RE, Ludolph I, Meyer A, Regus S. Microcirculation evaluated by intraoperative fluorescence angiography after tibial bypass surgery. Ann Vasc Surg. 2017 Apr;40:190-197. doi: 10.1016/j.avsg.2016.07.084. Epub 2016 Nov 25.
223. Rother U, et al., Pilot Assessment of the Angiosome Concept by Intra-operative Fluorescence Angiography After Tibial Bypass Surgery, European Journal of Vascular and Endovascular Surgery (2017), <https://doi.org/10.1016/j.ejvs.2017.11.024>.
224. Kim, P. J., Attinger, C. E., Akbari, C. M., & Ward, C. (2017). Correlation of Values for Indocyanine Green Angiography in the Arterographically Normal Lower Extremity. Surg Technol Int. 2017 Dec 22;31:156-161.
225. Johnson-Arbor K, Falola R, Kelty J, Barbour J, Attinger C. Use of indocyanine green fluorescent angiography in a hyperbaric patient with soft tissue radiation necrosis: a case report. Undersea & Hyperbaric Medical Society, Inc., vol 44, no 3. 2017.
226. Masters T, Omodt S, Gayken J, Logue C, Westgard B, Hendriksen S, Walter J, Nygaard R. Microangiography to Monitor Treatment Outcomes Following Severe Frostbite Injury to the Hands. Journal of Burn Care & Research. 2017. DOI:10.1097/BCR.0000000000000526.
227. Settembre N, Kauhanen P, Alback A, Spillerova K, Venermo M. Quality Control of the Foot Revascularization Using Indocyanine Green Fluorescence Imaging. World J Surg. Published online 3/6/17. DOI 10.1007/s00268-017-3950-6.
228. Marmolejo, V. S., & Arnold, J. F. (2018). The Ability of Fluorescence Angiography to Detect Local Ischemia in Patients With Heel Ulceration. Foot & Ankle Specialist, 1938640018762557. doi:10.1177/1938640018762557.
229. Patel HM, Bulsara SS, Banerjee S, Sahu T, Sheorain VK, Grover T, Parakh R, A novel technique: Indocyanine green angiography to prognosticate healing of foot ulcer in critical limb ischemia, Annals of Vascular Surgery (2018), doi: 10.1016/j.avsg.2018.02.021
230. Rieß, H. C., Duprée, A., Behrendt, C., Kölbel, T., Debus, E. S., Larena-Avellaneda, A., & ... Wipper, S. (2017). Initial experience with a new quantitative assessment tool for fluorescent imaging in peripheral artery disease. VASA. Zeitschrift Fur Gefasskrankheiten, 46(5), 383-388. doi:10.1024/0301-1526/a000642
231. Yang, A., Hartranft, C., Reiss, A., Holden, C. (2017 online) Improving Outcomes for Lower Extremity Amputations Using Intraoperative Fluorescent Angiography to Predict Flap Viability. Vascular and Endovascular Surgery. 2018 Jan;52(1):16-21. doi: 10.1177/1538574417740048
232. De Silva GS, et al., Amputation stump perfusion is predictive of post-operative necrotic eschar formation, The American Journal of Surgery (2018), <https://doi.org/10.1016/j.amjsurg.2018.05.007>
233. Rother, U., Lang, W., Noninvasive measurements of tissue perfusion in critical limb ischemia. Gefasschirurgie. 2018;23(Suppl 1):8-12.

doi: 10.1007/s00772-018-0368-x.

234. Andersen, C., Daab, D., Le, T., Green, D., Tyminski, R., Ponticello, M. Marmolejo, V. Treatment of Nonreconstructable Critical Limb Ischemia With Ischemic Wounds Utilizing a Noninvasive Intermittent Pneumatic Compression Device Monitored With Fluorescence Angiography. *Wounds* 2018;30(7):191–196.
235. Andersen CA, Ponticello M, Byerley N, Marmolejo V. Insulated Offloading Provides Offloading Protection and Enhanced Skin Perfusion. *Wounds*. 2018 Oct;30(10):300-305.
236. Regus S, Klingler F, Lang W, Meyer A1, Almási-Sperling V, May M, Wüst W, Rother U. Pilot study using intraoperative fluorescence angiography during arteriovenous hemodialysis access surgery. *J Vasc Access*. 2018 Sep 11:1129729818791989. doi: 10.1177/1129729818791989.
237. Renno I, Boos AM, Horch RE, Ludolph I. Changes of perfusion patterns of surgical wounds under application of closed incision negative pressure wound therapy in postbariatric patients. *Clin Hemorheol Microcirc*. 2019 Jan 14. doi: 10.3233/CH-180450.
238. Arnold JF, Marmolejo V, Visualization of angiogenesis and vasculogenesis in a late tissue radiation injury of the chest wall treated with adjuvant hyperbaric oxygen therapy using fluorescence angiography. *UHM* 2019, VOL. 46, NO. 1: 69-73.
239. Hui-Chou HG, Thakkar MY, Means KR Jr, Higgins JP. A Prospective Pilot Study of Vascular Assessment of the Upper Extremity With Laser Angiography. *Hand (N Y)*. 2019 Mar 21:1558944719837023. doi: 10.1177/1558944719837023.