

## **Hyperthermia Policy**

### **Purpose**

To describe the CVS Radiation Oncology External Policy for Hyperthermia.

### **Scope**

The scope of this document applies to CVS Health clients who have signed up for the CVS Radiation Oncology program under CVS Health Solutions. This document includes the external policy details for the Hyperthermia policy.

### **Background**

CVS Health considers Hyperthermia medically necessary in the treatment of some tumor types. The goal of hyperthermia in cancer therapy is to produce tumor tissue temperatures above 41 to 42 degrees centigrade. Hyperthermia has been shown to potentiate the tumoricidal effects of radiation therapy.

### **Policy**

CVS Health considers Hyperthermia medically necessary in the following procedures:

- Cytoreductive surgery combined with hyperthermic intraperitoneal chemotherapy (HIPEC) for the treatment of pseudomyxoma peritonei (including disseminated peritoneal adenomucinosis (DPAM), characterized by histologically benign peritoneal tumors that are frequently associated with an appendiceal mucinous adenoma, as well as peritoneal mucinous carcinomatosis, which are defined as disseminated mucin-producing adenocarcinomas);
- Cytoreductive surgery combined with HIPEC for the treatment of peritoneal mesothelioma;
- Cytoreductive surgery combined with HIPEC for the treatment of goblet cell carcinoid tumor;
- HIPEC for use with cisplatin at the time of interval debulking surgery for FIGO stage III ovarian cancer;
- Regional hyperthermic melphalan perfusion in members with stage II, IIIA, and stage III in-transit extremity melanoma;
- Sequential radiation and local/regional external hyperthermia only for the treatment of primary or metastatic cutaneous or subcutaneous superficial malignancies (e.g., superficial recurrent melanoma, chest wall recurrence of breast cancers, and cervical lymph node metastases from head and neck cancer)

Hyperthermia is considered experimental and investigational for all other indications including the following applications because the effectiveness of this approach in these conditions has not been established:

- Deep hyperthermia alone or in combination with radiation therapy
- HIPEC for the following other than the indicated scenarios above:
- Intrapleural mesothelioma
- Appendiceal carcinoma without pseudomyxoma
- Bladder cancer
- Clear cell carcinoma of the ovary
- Colon cancer
- Colorectal signet ring carcinoma
- Desmoplastic small round cell tumor
- Fallopian tube cancer
- Gastric cancer
- Hepatocellular carcinoma
- Mixed germ cell tumor
- Pancreatic cancer
- Signet ring adenocarcinoma of the appendix
- Small bowel adenocarcinoma
- Thymic carcinoma
- Urachal cancer
- Uterine leiomyosarcoma; and
- Peritoneal surface malignancy (peritoneal carcinomatosis, peritoneal sarcomatosis) for indications other than pseudomyxoma peritonei or peritoneal mesothelioma
- Interstitial, intra-cavitary, and intraluminal hyperthermia
- Pleural HIPEC for the treatment of metastatic pleural malignancies, pleural mesothelioma, and other indications
- Prophylactic HIPEC for gastric cancer
- Regional hyperthermic melphalan perfusion in stage I, IIIB and IIIAB extremity melanoma, as well as regional hyperthermic perfusion for extremity melanoma in conjunction with any other chemotherapy
- Regional hyperthermic perfusion for indications (e.g., non-small cell lung cancer) other than extremity melanoma
- Superficial hyperthermia for paranasal sinus and nasal cavity cancer
- Transrectal ultrasound hyperthermia for prostate cancer; and
- Whole body hyperthermia for testicular cancer and other indications.

The final medical necessity will be determined based on the terms of the member's benefit plan. Please check benefit plan descriptions.

## References

The Hyperthermia policy is based on the following references:

1. Baratti D, Kusamura S, Iusco D, et al. Hyperthermic intraperitoneal chemotherapy (HIPEC) at the time of primary curative surgery in patients with colorectal cancer at high risk for metachronous peritoneal metastases. *Ann Surg Oncol*. 2017;24(1):167-175.
2. Baratti D, Pennacchioli E, Kusamura S, et al. Peritoneal sarcomatosis: Is there a subset of patients who may benefit from cytoreductive surgery and hyperthermic intraperitoneal chemotherapy? *Ann Surg Oncol*. 2010;17(12):3220-3228.
3. Beeharry MK, Ni Z-T, Yang ZY, et al. Study protocol of a multicenter phase III randomized controlled trial investigating the efficiency of the combination of neoadjuvant chemotherapy (NAC) and neoadjuvant laparoscopic intraperitoneal hyperthermic chemotherapy (NLHIPEC) followed by R0 gastrectomy with intraoperative HIPEC for advanced gastric cancer (AGC): Dragon II trial. *BMC Cancer*. 2020;20(1):224.
4. Behrenbruch C, Hollande F, Thomson B, et al. Treatment of peritoneal carcinomatosis with hyperthermic intraperitoneal chemotherapy in colorectal cancer. *ANZ J Surg*. 2017;87(9):665-670.
5. Bergs JW, Franken NA, Haveman J, et al. Hyperthermia, cisplatin and radiation trimodality treatment: A promising cancer treatment? A review from preclinical studies to clinical application. *Int J Hyperthermia*. 2007;23(4):329-341.
6. Bezjak A, Meneshian A, Giaccone G. Clinical presentation and management of thymoma and thymic carcinoma. UpToDate [online serial]. Waltham, MA: UpToDate; reviewed December 2014.
7. Birrer MJ, Fujiwara K. Medical treatment for relapsed epithelial ovarian, fallopian tubal, or peritoneal cancer: Platinum-resistant disease. UpToDate [online serial]. Waltham, MA: UpToDate; reviewed December 2016.
8. Boisen MM, Richard SD, Holtzman MP, et al. Hyperthermic intraperitoneal chemotherapy for epithelial ovarian cancers: Is there a role? *J Gastrointest Oncol*. 2016;7(1):10-17.
9. Bonnot P-E, Piessen G, Kepenekian V, et al, FREGAT and BIG-RENAPE Networks. Cytoreductive surgery with or without hyperthermic intraperitoneal chemotherapy for gastric cancer with peritoneal metastases (CYTO-CHIP study): A propensity score analysis. *J Clin Oncol*. 2019;37(23):2028-2040.
10. Brenkman HJF, Paeva M, van Hillegersberg R, et al. Prophylactic hyperthermic intraperitoneal chemotherapy (HIPEC) for gastric cancer - A systematic review. *J Clin Med*. 2019;8(10).
11. Brorson F, Breimer ME, Carlsson G, et al. Pseudomyxoma peritonei –uppdatering av HTA-rapport 2009:22 - Behandling med cytoreduktiv kirurgi och intraperitoneal cytostatika. [Cytoreductive surgery with intraperitoneal chemotherapy for pseudomyxoma peritonei]. Summary. HTA-rapport 2013. Gothenburg, Sweden: The Regional Health Technology Assessment Centre (HTA-centrum); 2013:58.

12. Bryant J, Clegg AJ, Sidhu MK, et al. Clinical effectiveness and costs of the Sugarbaker procedure for the treatment of pseudomyxoma peritonei. *Health Technol Assess*. 2004;8(7):1-66.
13. California Technology Assessment Forum (CTAF). Isolated limb perfusion for malignant melanoma of the extremity. *Technology Assessment*. San Francisco, CA: CTAF; February 13, 2002.
14. Canadian Agency for Drugs and Technologies in Health (CADTH). Hyperthermic intraperitoneal chemotherapy for peritoneal carcinomatosis: Clinical effectiveness and guidelines. *Rapid Response Report: Summary of Abstracts*. Ottawa, ON: CADTH; November 1, 2016.
15. Cancer Care Ontario. Adjuvant therapy for stage II colon cancer following complete resection. *Practice Guidelines #2-1*. Toronto, ON: Cancer Care Ontario; April 2000.
16. Cancer Care Ontario. Adjuvant therapy for stage III colon cancer following complete resection. *Practice Guidelines #2-2*. Toronto, ON: Cancer Care Ontario; April 2000.
17. Centers for Medicare & Medicaid Services (CMS). Hyperthermia for Treatment of Cancer (NCD 110.1). Baltimore, MD: CMS; effective December 31, 1984.
18. Chen L-M, Berek JS. Overview of epithelial carcinoma of the ovary, fallopian tube, and peritoneum. *UpToDate* [online serial]. Waltham, MA: UpToDate; reviewed December 2016.
19. Chen V, Jones M, Cohen L, et al. Cytoreductive surgery (CRS) and hyperthermic intraperitoneal chemotherapy (HIPEC) in small bowel adenocarcinoma with peritoneal metastasis: A systematic review. *Pleura Peritoneum*. 2022;7(4):159-167.
20. Chen X, Luo J, Liu H, et al. Progress in prophylactic hyperthermic intraperitoneal chemotherapy for advanced gastric carcinoma. *Zhonghua Wei Chang Wai Ke Za Zhi*. 2018;21(5):593-599.
21. Chicago Consensus Working Group. The Chicago Consensus on peritoneal surface malignancies: Management of gastric metastases. *Cancer*. 2020;126(11):2541-2546.
22. Chua TC, Liauw W, Zhao J, Morris DL. Upfront compared to delayed cytoreductive surgery and perioperative intraperitoneal chemotherapy for pseudomyxoma peritonei is associated with considerably lower perioperative morbidity and recurrence rate. *Ann Surg*. 2011;253(4):769-773.
23. Chua TC, Robertson G, Liauw W, et al. Intraoperative hyperthermic intraperitoneal chemotherapy after cytoreductive surgery in ovarian cancer peritoneal carcinomatosis: Systematic review of current results. *J Cancer Res Clin Oncol*. 2009;135(12):1637-1645.
24. Cripe J, Tseng J, Eskander R, et al. Cytoreductive surgery and hyperthermic intraperitoneal chemotherapy for recurrent ovarian carcinoma: Analysis of 30-day morbidity and mortality. *Ann Surg Oncol*. 2015;22(2):655-661.
25. Cusack JC, Jr., Overman MJ. Treatment of small bowel neoplasms. *UpToDate* [online serial]. Waltham, MA: UpToDate; reviewed December 2104.
26. de Bree E, van Ruth S, Baas P, et al. Cytoreductive surgery and intraoperative hyperthermic intrathoracic chemotherapy in patients with malignant pleural mesothelioma or pleural metastases of thymoma. *Chest*. 2002;121(2):480-487.

27. Deraco M, Baratti D, Laterza B, et al. Advanced cytoreduction as surgical standard of care and hyperthermic intraperitoneal chemotherapy as promising treatment in epithelial ovarian cancer. *Eur J Surg Oncol.* 2011;37(1):4-9.
28. Deraco M, Nonaka D, Baratti D, et al. Prognostic analysis of clinicopathologic factors in 49 patients with diffuse malignant peritoneal mesothelioma treated with cytoreductive surgery and intraperitoneal hyperthermic perfusion. *Ann Surg Oncol.* 2006;13(2):229-237.
29. Deraco M, Raspagliesi F, Kusamura S. Management of peritoneal surface component of ovarian cancer. *Surg Oncol Clin N Am.* 2003;12(3):561-583.
30. Desiderio J, Chao J, Melstrom L, et al. The 30-year experience -- A meta-analysis of randomised and high-quality non-randomised studies of hyperthermic intraperitoneal chemotherapy in the treatment of gastric cancer. *Eur J Cancer.* 2017;79:1-14.
31. D'Hondt V, Goffin F, Roca L, et al. Interval cytoreductive surgery and hyperthermic intraperitoneal chemotherapy in first-line treatment for advanced ovarian carcinoma: A feasibility study. *Int J Gynecol Cancer.* 2016;26(5):912-917.
32. Di Giorgio A, Naticchioni E, Biacchi D, et al. Cytoreductive surgery (peritonectomy procedures) combined with hyperthermic intraperitoneal chemotherapy (HIPEC) in the treatment of diffuse peritoneal carcinomatosis from ovarian cancer. *Cancer.* 2008;113(2):315-325.
33. Di Vita M, Cappellani A, Piccolo G, et al. The role of HIPEC in the treatment of peritoneal carcinomatosis from gastric cancer: Between lights and shadows. *Anticancer Drugs.* 2015;26(2):123-138.
34. Douwes F, Bogovič J, Douwes O, et al. Whole-body hyperthermia in combination with platinum-containing drugs in patients with recurrent ovarian cancer. *Int J Clin Oncol.* 2004;9(2):85-91.
35. Dovern E, de Hingh IH, Verwaal VJ, et al. Hyperthermic intraperitoneal chemotherapy added to the treatment of ovarian cancer. A review of achieved results and complications. *Eur J Gynaecol Oncol.* 2010;31(3):256-261.
36. Dufresne A, Cassier P, Couraud L, et al. Desmoplastic small round cell tumor: Current management and recent findings. *Sarcoma.* 2012;2012:714986. Published online 2012 March 29.
37. Elias D, David A, Sourrouille I, et al. Neuroendocrine carcinomas: Optimal surgery of peritoneal metastases and associated intra-abdominal metastases. *Surgery.* 2014a;155(1):5-12.
38. Elias D, Gilly F, Boutitie F, et al. Peritoneal colorectal carcinomatosis treated with surgery and perioperative intraperitoneal chemotherapy: Retrospective analysis of 523 patients from a multicentric French study. *J Clin Oncol.* 2010;28(1):63-68.
39. Elias D, Goere D, Dumont F, et al. Role of hyperthermic intraoperative peritoneal chemotherapy in the management of peritoneal metastases. *Eur J Cancer.* 2014b;50(2):332-340.
40. Elias D, Honore C, Ciuchendéa R, et al. Peritoneal pseudomyxoma: Results of a systematic policy of complete cytoreductive surgery and hyperthermic intraperitoneal chemotherapy. *Br J Surg.* 2008;95(9):1164-1171.

41. Elias D, Lefevre JH, Chevalier J, et al. Complete cytoreductive surgery plus intraperitoneal chemohyperthermia with oxaliplatin for peritoneal carcinomatosis of colorectal origin. *J Clin Oncol*. 2009;27(5):681-685.
42. Emami B, Scott C, Perez CA, et al. Phase III study of interstitial thermoradiotherapy compared with interstitial radiotherapy alone in the treatment of recurrent or persistent human tumors. A prospectively controlled randomized study by the Radiation Therapy Group. *Int J Radiat Oncol Biol Phys*. 1996;34(5):1097-1104.
43. Engin K, Leeper DB, Tupchong L, et al. Thermoradiation therapy for superficial malignant tumors. *Cancer*. 1993;72(1):287-296.
44. Engin K, Tupchong L, Waterman FM, et al. Hyperthermia and radiation in advanced malignant melanoma. *Int J Radiat Oncol Biol Phys*. 1993;25(1):87-94.
45. Esquivel J, Averbach A, Chua TC. Laparoscopic cytoreductive surgery and hyperthermic intraperitoneal chemotherapy in patients with limited peritoneal surface malignancies: Feasibility, morbidity and outcome in an early experience. *Ann Surg*. 2011;253(4):764-768.
46. Esquivel J, Sticca R, Sugarbaker P, et al; Society of Surgical Oncology Annual Meeting. Cytoreductive surgery and hyperthermic intraperitoneal chemotherapy in the management of peritoneal surface malignancies of colonic origin: A consensus statement. Society of Surgical Oncology. *Ann Surg Oncol*. 2007;14(1):128-133.
47. Ferron G, Martinez A, Mery E, et al. Importance of hyperthermic intraperitoneal chemotherapy (HIPEC) in ovarian cancer. *Bull Cancer*. 2009;96(12):1243-1252.
48. Filis P, Kanellopoulou A, Gogadis A, et al. Hyperthermic intraperitoneal chemotherapy for management of gastrointestinal and biliary tract malignancies: A systematic review and meta-analysis of randomized trials. *Ann Gastroenterol*. 2023;36(1):87-96.
49. Fraker DL. Hyperthermia regional perfusion for melanoma and sarcoma of the limbs. *Curr Probl Surg*. 1999;36(110):841-907.
50. Franckena M, Stalpers LJ, Koper PC, et al. Long-term improvement in treatment outcome after radiotherapy and hyperthermia in locoregionally advanced cervix cancer: An update of the Dutch Deep Hyperthermia Trial. *Int J Radiat Oncol Biol Phys*. 2008;70(4):1176-1182.
51. Franko J, Ibrahim Z, Gusani NJ, et al. Cytoreductive surgery and hyperthermic intraperitoneal chemoperfusion versus systemic chemotherapy alone for colorectal peritoneal carcinomatosis. *Cancer*. 2010;116(16):3756-3762.
52. Green I. Hyperthermia alone or combined with chemotherapy for treatment of cancer. *AHCPR Health Technology Reports*. 1991;(2):1-16.
53. Grotz TE, Overman MJ, Eng C, et al. Cytoreductive surgery and hyperthermic intraperitoneal chemotherapy for moderately and poorly differentiated appendiceal adenocarcinoma: Survival outcomes and patient selection. *Ann Surg Oncol*. 2017;24(9):2646-2654.
54. Gurkan Zorlu C, Eylem Seker Ari P. Hyperthermia in gynecologic cancers. *Eur J Gynaecol Oncol*. 2003;24(3-4):282-286.
55. Hafstrom L, Rudenstam CM, Blomquist E, et al. Regional hyperthermic perfusion with melphalan after surgery for recurrent malignant melanoma. *J Clin Oncol*. 1991;9(12):2091-2094.

56. Hamilou Z, North S, Canil C, et al. Management of urachal cancer: A consensus statement by the Canadian Urological Association and Genitourinary Medical Oncologists of Canada. *Can Urol Assoc J.* 2020;14(3):E57-E64.
57. Harima Y, Nagata K, Harima K, et al. A randomized clinical trial of radiation therapy versus thermoradiotherapy in stage IIIB cervical carcinoma. *Int J Hyperthermia.* 2001;17(2):97-105.
58. Harima Y, Ohguri T, Imada H, et al. A multicentre randomised clinical trial of chemoradiotherapy plus hyperthermia versus chemoradiotherapy alone in patients with locally advanced cervical cancer. *Int J Hyperthermia.* 2016;32(7):801-808.
59. Harter P, du Bois A, Mahner S, et al. Statement of the AGO Kommission Ovar, AGO Study Group, NOGGO, AGO Austria and AGO Switzerland regarding the use of hyperthermic intraperitoneal chemotherapy (HIPEC) in ovarian cancer. *Geburtshilfe Frauenheilkd.* 2016;76(2):147-149.
60. Harter P, Mahner S, Hilpert F, et al; for the Kommission Ovar of the Arbeitsgemeinschaft Gynakologische Onkologie. Statement by the Kommission OVAR of the AGO Study Group on the Use of HIPEC (Hyperthermic Intraperitoneal Chemotherapy) to Treat Primary and Recurrent Ovarian Cancer. *Geburtshilfe Frauenheilkd.* 2013;73(3):221-223.
61. Hayes-Jordan A, Green H, Fitzgerald N, et al. Novel treatment for desmoplastic small round cell tumor: Hyperthermic intraperitoneal perfusion. *J Pediatr Surg.* 2010;45(5):1000-1006.
62. Hayes-Jordan A, Green H, Lin H, et al. Cytoreductive surgery and hyperthermic intraperitoneal chemotherapy (HIPEC) for children, adolescents, and young adults: The first 50 cases. *Ann Surg Oncol.* 2015;22(5):1726-1732.
63. Hayes-Jordan A, Green HL, Lin H, et al. Complete cytoreduction and HIPEC improves survival in desmoplastic small round cell tumor. *Ann Surg Oncol.* 2014;21(1):220-224
64. Hayes-Jordan A, LaQuaglia MP, Modak S. Management of desmoplastic small round cell tumor. *Semin Pediatr Surg.* 2016;25(5):299-304.
65. Hayes-Jordan A, Lopez C, Green HL, et al. Cytoreductive surgery (CRS) and hyperthermic intraperitoneal chemotherapy (HIPEC) in pediatric ovarian tumors: A novel treatment approach. *Pediatr Surg Int.* 2016;32(1):71-73.
66. Hayes-Jordan A. Cytoreductive surgery followed by hyperthermic intraperitoneal chemotherapy in DSRCT: Progress and pitfalls. *Curr Oncol Rep.* 2015;17(8):38
67. Hehr T, Wust P, Bamberg M, Budach W. Current and potential role of thermoradiotherapy for solid tumours. *Onkologie.* 2003;26(3):295-302.
68. Helm CW, Richard SD, Pan J, et al. Hyperthermic intraperitoneal chemotherapy in ovarian cancer: First report of the HYPER-O registry. *Int J Gynecol Cancer.* 2010;20(1):61-69.
69. Hennessy BT, Coleman RL, Markman M. Ovarian cancer. *Lancet.* 2009;374(9698):1371-1382.
70. Herzog TJ, Armstrong DK. First-line chemotherapy for advanced (stage III or IV) epithelial ovarian, fallopian tubal, and peritoneal cancer. UpToDate [online serial]. Waltham, MA: UpToDate; reviewed December 2016.

71. Hoekstra HJ, Schraffordt Koops H, de Vries LG, et al. Toxicity of hyperthermic isolated limb perfusion with cisplatin for recurrent melanoma of the lower extremity after previous perfusion treatment. *Cancer*. 1993;72(4):1224-1229.
72. Honore C, Atallah V, Mir O, et al; French Network for Rare Peritoneal Malignancies (RENAPE), French Pediatric Cancer Society (SFCE), French Reference Network in Sarcoma Pathology (RRePS) French Sarcoma Clinical Network (NETSARC). Abdominal desmoplastic small round cell tumor without extraperitoneal metastases: Is there a benefit for HIPEC after macroscopically complete cytoreductive surgery? *PLoS One*. 2017;12(2):e0171639.
73. Hotopp T. HIPEC and CRS in peritoneal metastatic gastric cancer -- who really benefits? *Surg Oncol*. 2019;28:159-166.
74. Hotouras A, Desai D, Bhan C, et al. Heated intraPeritoneal chemotherapy (HIPEC) for patients with recurrent ovarian cancer: A systematic literature review. *Int J Gynecol Cancer*. 2016 2016;26(4):661-670.
75. Huang CQ, Min Y, Wang SY, et al. Cytoreductive surgery plus hyperthermic intraperitoneal chemotherapy improves survival for peritoneal carcinomatosis from colorectal cancer: A systematic review and meta-analysis of current evidence. *Oncotarget*. 2017;8(33):55657-55683.
76. Huo YR, Richards A, Liauw W, Morris DL. Hyperthermic intraperitoneal chemotherapy (HIPEC) and cytoreductive surgery (CRS) in ovarian cancer: A systematic review and meta-analysis. *Eur J Surg Oncol*. 2015 41(12):1578-1589.
77. Hurwitz MD, Hansen JL, Prokopios-Davos S, et al. Hyperthermia combined with radiation for the treatment of locally advanced prostate cancer: Long-term results from Dana-Farber Cancer Institute study 94-153. *Cancer*. 2011;117(3):510-516.
78. Ishibashi H, Kobayashi M, Takasaki C, Okubo K. Interim results of pleurectomy/decortication and intraoperative intrapleural hyperthermic cisplatin perfusion for patients with malignant pleural mesothelioma intolerable to extrapleural pneumonectomy. *Gen Thorac Cardiovasc Surg*. 2015;63(7):395-400.
79. Isik AF, Sanlı M, Yilmaz M, et al. Intrapleural hyperthermic perfusion chemotherapy in subjects with metastatic pleural malignancies. *Respir Med*. 2013;107(5):762-767.
80. Issels RD, Schlemmer M, Lindner LH. The role of hyperthermia in combined treatment in the management of soft tissue sarcoma. *Curr Oncol Rep*. 2006;8(4):305-309.
81. Jones EL, Oleson JR, Prosnitz LR, et al. Randomized trial of hyperthermia and radiation for superficial tumors. *J Clin Oncol*. 2005;23(13):3079-3085.
82. Karadayi K, Yildiz C, Karakus S, et al. Cytoreductive surgery and perioperative intraperitoneal chemotherapy for gynecological malignancies: A single center experience. *Eur J Gynaecol Oncol*. 2016;37(2):194-198.
83. Khatri VP. Cytoreductive surgery and hyperthermic intraperitoneal chemotherapy for colorectal cancer: A panacea or just an obstacle course for the patient? *J Clin Oncol*. 2010;28(1):5-7.
84. Kim SI, Cho J, Lee EJ, et al. Selection of patients with ovarian cancer who may show survival benefit from hyperthermic intraperitoneal chemotherapy: A systematic review and meta-analysis. *Medicine (Baltimore)*. 2019;98(50):e18355.



85. Klaver CEL, Stam R, Sloothaak DAM, et al. Colorectal cancer at high risk of peritoneal metastases: Long term outcomes of a pilot study on adjuvant laparoscopic HIPEC and future perspectives. *Oncotarget*. 2017;8(31):51200-51209.
86. Kodama K, Doi O, Higashiyama M, et al. Long-term results of postoperative intrathoracic chemo-thermotherapy for lung cancer with pleural dissemination. *Cancer*. 1993;72(2):426-431.
87. Kouloulialis V, Plataniotis G, Kouvaris J, et al. Chemoradiotherapy combined with intracavitary hyperthermia for anal cancer: Feasibility and long-term results from a phase II randomized trial. *Am J Clin Oncol*. 2005;28(1):91-99.
88. Kusamura S, Younan R, Baratti D, et al. Cytoreductive surgery followed by intraperitoneal hyperthermic perfusion: Analysis of morbidity and mortality in 209 peritoneal surface malignancies treated with closed abdomen technique. *Cancer*. 2006;106(5):1144-1153.
89. Lamarca A, Nonaka D, Lopez Escola C, et al. Appendiceal goblet cell carcinoids: Management considerations from a reference peritoneal tumour service centre and ENETS Centre of Excellence. *Neuroendocrinology*. 2016;103(5):500-517.
90. Lammers RJ, Witjes JA, Inman BA, et al. The role of a combined regimen with intravesical chemotherapy and hyperthermia in the management of non-muscle-invasive bladder cancer: A systematic review. *Eur Urol*. 2011;60(1):81-93.
91. Lavoue V, Huchon C, Akladios C, et al. Management of epithelial cancer of the ovary, fallopian tube, and primary peritoneum. Short text of the French Clinical Practice Guidelines issued by FRANCOGYN, CNGOF, SFOG, and GINECO-ARCAGY, and endorsed by INCa. *Eur J Obstet Gynecol Reprod Biol*. 2019;236:214-223.
92. Levine EA, Stewart J, Shen P, et al. Intraperitoneal chemotherapy for peritoneal surface malignancy: Experience with 1,000 patients. *J Am Coll Surg*. 2014;218:573-585.
93. Li J, Wang A-R, Chen X-D, et al. Effect of hyperthermic intraperitoneal chemotherapy in combination with cytoreductive surgery on the prognosis of patients with colorectal cancer peritoneal metastasis: A systematic review and meta-analysis. *World J Surg Oncol*. 2022;20(1):200.
94. Lim MC, Kang S, Choi J, et al. Hyperthermic intraperitoneal chemotherapy after extensive cytoreductive surgery in patients with primary advanced epithelial ovarian cancer: Interim analysis of a phase II study. *Ann Surg Oncol*. 2009;16(4):993-1000.
95. Liu L, Zhang N, Min J, et al. Retrospective analysis on the safety of 5,759 times of bedside hyperthermic intra-peritoneal or intra-pleural chemotherapy (HIPEC). *Oncotarget*. 2016;7(16):21570-21578.
96. Ludwigs K, Breimer ME, Brorson F, et al. Cytoreduktiv kirurgi med intraperitoneal cytostatika (HIPEC eller EPIC) vid kolorektalt adenocarcinom och peritoneal carcinos. [Cytoreductive surgery and intraperitoneal chemotherapy (HIPEC or EPIC) in patients with colorectal adenocarcinoma and peritoneal carcinomatosis.] Summary. HTA-rapport 2013. Gothenburg, Sweden: The Regional Health Technology Assessment Centre (HTA-centrum); 2013:57.
97. Madsen AH, Ladekarl M, Villadsen GE, et al. Effects of cytoreductive surgery and hyperthermic intraperitoneal chemotherapy (HIPEC) in the treatment of goblet cell carcinoma: A prospective cohort study. *Ann Surg Oncol*. 2018;25(2):422-430.

98. Maluta S, Dall'Oglio S, Romano M, et al. Conformal radiotherapy plus local hyperthermia in patients affected by locally advanced high risk prostate cancer: Preliminary results of a prospective phase II study. *Int J Hyperthermia*. 2007;23(5):451-456.
99. Manzanedo I, Pereira F, Caro CR, et al. Cytoreductive surgery and hyperthermic intraperitoneal chemotherapy (HIPEC) for gastric cancer with peritoneal carcinomatosis: Multicenter study of Spanish Group of Peritoneal Oncologic Surgery (GECOP). *Ann Surg Oncol*. 2019;26(8):2615-2621.
100. Matsuzaki S, Matsuzaki S, Chang EJ, et al. Surgical and oncologic outcomes of hyperthermic intraperitoneal chemotherapy for uterine leiomyosarcoma: A systematic review of literature. *Gynecol Oncol*. 2021;161(1):70-77.
101. McConnell YJ, Mack LA, Gui X, et al. Cytoreductive surgery with hyperthermic intraperitoneal chemotherapy: An emerging treatment option for advanced goblet cell tumors of the appendix. *Ann Surg Oncol*. 2014;21(6):1975-1982.
102. Mertens LS, Behrendt MA, Mehta AM, et al. Long-term survival after cytoreductive surgery and hyperthermic intraperitoneal chemotherapy (HIPEC) for patients with peritoneal metastases of urachal cancer. *Eur J Surg Oncol*. 2019;45(9):1740-1744.
103. Mi DH, Li Z, Yang KH, et al. Surgery combined with intraoperative hyperthermic intraperitoneal chemotherapy (IHIC) for gastric cancer: A systematic review and meta-analysis of randomised controlled trials. *Int J Hyperthermia*. 2013;29(2):156-167.
104. Mielko J, Rawicz-Pruszyński K, Skorzewska M, et al. Conversion surgery with HIPEC for peritoneal oligometastatic gastric cancer. *Cancers (Basel)*. 2019;11(11):1715.
105. Migliore M, Calvo D, Criscione A, et al. Pleurectomy/decortication and hyperthermic intrapleural chemotherapy for malignant pleural mesothelioma: Initial experience. *Future Oncol*. 2015;11(24 Suppl):19-22.
106. Minicozzi A, Borzellino G, Momo EN, et al. Treatment of the peritoneal carcinomatosis by cytoreductive surgery and intraperitoneal hyperthermic chemotherapy (IHPC): Postoperative morbidity and mortality and short-term follow-up. *Ann Ital Chir*. 2008;79(4):231-239.
107. Mitsumori M, Zeng ZF, Oliynychenko P, et al. Regional hyperthermia combined with radiotherapy for locally advanced non-small cell lung cancers: A multi-institutional prospective randomized trial of the International Atomic Energy Agency. *Int J Clin Oncol*. 2007;12(3):192-198.
108. Msika S, Gruden E, Sarnacki S, et al. Cytoreductive surgery associated to hyperthermic intraperitoneal chemoperfusion for desmoplastic round small cell tumor with peritoneal carcinomatosis in young patients. *J Pediatr Surg*. 2010;45(8):1617-1621.
109. Munoz-Zuluaga C, Sardi A, King MC, et al. Outcomes in peritoneal dissemination from signet ring cell carcinoma of the appendix treated with cytoreductive surgery and hyperthermic intraperitoneal chemotherapy. *Ann Surg Oncol*. 2019;26(2):473-481.

110. National Cancer Institute (NCI). Cervical cancer treatment (PDQ). Health Professional Version. PDQ Cancer Information Summaries: Adult Treatment. Bethesda, MD: NCI; updated May 16, 2008.
111. National Cancer Institute (NCI). Childhood soft tissue sarcoma treatment (PDQ). PDQ Cancer Information Summaries [Internet]. Health Professional Version. Bethesda, MD: NCI; December 6, 2017.
112. National Cancer Institute (NCI). Gastrointestinal Carcinoid Tumors Treatment (PDQ). Health Professionals Version. Bethesda, MD: NCI; updated January 16, 2015.
113. National Cancer Institute (NCI). Malignant mesothelioma treatment (PDQ). Health Professional Information. Rockville, MD: NCI; January 9, 2009.
114. National Comprehensive Cancer Network (NCCN). Gastric adenocarcinoma. NCCN Clinical Practice Guidelines in Oncology. v.1.2003. Rockledge, PA: NCCN; 2003.
115. National Comprehensive Cancer Network (NCCN). Breast cancer. NCCN Clinical Practice Guidelines in Oncology. v.1.2009. Fort Washington, PA: NCCN; 2009.
116. National Comprehensive Cancer Network (NCCN). Cervical cancer. NCCN Clinical Practice Guidelines in Oncology. v.2.2009. Fort Washington, PA: NCCN; 2009.
117. National Comprehensive Cancer Network (NCCN). Colon cancer. NCCN Clinical Practice Guidelines in Oncology. v.2.2009. Fort Washington, PA: NCCN; 2009.
118. National Comprehensive Cancer Network (NCCN). Colon cancer. NCCN Clinical Practice Guidelines in Oncology. v.2.2021; v3.2021 Plymouth Meeting, PA: NCCN; 2021.
119. National Comprehensive Cancer Network (NCCN). Gastric cancer. NCCN Clinical Practice Guidelines in Oncology. v.2.2013. Fort Washington, PA: NCCN; 2013.
120. National Comprehensive Cancer Network (NCCN). Gastric cancer. NCCN Clinical Practice Guidelines in Oncology. v.2.2022. Plymouth Meeting, PA: NCCN; 2022.
121. National Comprehensive Cancer Network (NCCN). Hepatobiliary cancers. NCCN Clinical Practice Guidelines in Oncology. Version 1.2015. Fort Washington, PA: NCCN; 2015.
122. National Comprehensive Cancer Network (NCCN). Malignant pleural mesothelioma. NCCN Clinical Practice Guidelines in Oncology. Version 1.2011. Fort Washington, PA: NCCN; 2011.
123. National Comprehensive Cancer Network (NCCN). Pancreatic adenocarcinoma. NCCN Clinical Practice Guidelines in Oncology. v.1.2014. Fort Washington, PA: NCCN; 2013.
124. National Comprehensive Cancer Network (NCCN). Cervical cancer. NCCN Clinical Practice Guidelines in Oncology Version 1.2018. Fort Washington, PA: NCCN; 2018.
125. National Comprehensive Cancer Network (NCCN). Colon cancer. NCCN Clinical Practice Guidelines in Oncology. Version 2.2015. Fort Washington, PA: NCCN; 2015.

126. National Comprehensive Cancer Network (NCCN). Colon cancer. NCCN Clinical Practice Guidelines in Oncology. Version 1.2018. Fort Washington, PA: NCCN; 2018.
127. National Comprehensive Cancer Network (NCCN). Colon cancer. NCCN Clinical Practice Guidelines in Oncology. Version 2.2021. Plymouth Meeting, PA: NCCN; 2021.
128. National Comprehensive Cancer Network (NCCN). Gastric cancer. NCCN Clinical Practice Guidelines in Oncology. Version 1.2015. Fort Washington, PA: NCCN; 2015.
129. National Comprehensive Cancer Network (NCCN). Malignant pleural mesothelioma. NCCN Clinical Practice Guidelines in Oncology. Version 2.2017. Fort Washington, PA: NCCN; 2017.
130. National Comprehensive Cancer Network (NCCN). Melanoma. NCCN Clinical Practice Guidelines in Oncology. v 2.2013. Fort Washington, PA: NCCN; 2013.
131. National Comprehensive Cancer Network (NCCN). Neuroendocrine tumors. NCCN Clinical Practice Guidelines in Oncology. Version 1.2015. Fort Washington, PA: NCCN; 2015.
132. National Comprehensive Cancer Network (NCCN). Neuroendocrine tumors. NCCN Clinical Practice Guidelines in Oncology. Version 2.2016. Fort Washington, PA: NCCN; 2016.
133. National Comprehensive Cancer Network (NCCN). Non-small cell lung cancer. NCCN Clinical Practice Guidelines in Oncology. Version 2.2013. Fort Washington, PA: NCCN; 2013.
134. National Comprehensive Cancer Network (NCCN). Ovarian cancer including fallopian tube cancer and primary peritoneal cancer. NCCN Clinical Practice Guidelines in Oncology. Version 1.2016. Fort Washington, PA: NCCN; 2016.
135. National Comprehensive Cancer Network (NCCN). Ovarian cancer including fallopian tube cancer and primary peritoneal cancer. NCCN Clinical Practice Guidelines in Oncology. Version 3.2019. Fort Washington, PA: NCCN; 2019.
136. National Comprehensive Cancer Network (NCCN). Thymomas and thymic carcinoma. NCCN Clinical Practice Guidelines in Oncology, Version 1.2014. Fort Washington, PA: NCCN; 2014.
137. National Institute for Clinical Excellence (NICE). Complete cytoreduction and heated intraoperative intraperitoneal chemotherapy (Sugarbaker technique) for peritoneal carcinomatosis. Interventional Procedure Guidance 116. London, UK: NICE; March 2005.
138. National Institute for Clinical Excellence (NICE). Complete cytoreduction for pseudomyxoma peritonei (Sugarbaker technique). Interventional Procedure Guidance 56. London, UK: NICE; April 2004.
139. Newhook TE, Agnes A, Blum M, et al. Laparoscopic hyperthermic intraperitoneal chemotherapy is safe for patients with peritoneal metastases from gastric cancer and may lead to gastrectomy. *Ann Surg Oncol.* 2019;26(5):1394-1400.
140. Overgaard J, Gonzalez Gonzalez D, Hulshof MC, et al. Randomised trial of hyperthermia as adjuvant to radiotherapy for recurrent or metastatic malignant

melanoma. European Society for Hyperthermic Oncology. *Lancet*. 1995;345(8949):540-543.

141. Perez CA, Pajak T, Emami B, et al. Randomized phase III study comparing irradiation and hyperthermia with irradiation alone in superficial measurable tumors. Final report by the Radiation Therapy Oncology Group. *Am J Clin Oncol*. 1991;14(2):133-141.
142. Polderdijk MCE, Brouwer M, Haverkamp L, et al. Outcomes of combined peritoneal and local treatment for patients with peritoneal and limited liver metastases of colorectal origin: A systematic review and meta-analysis. *Ann Surg Oncol*. 2022;29(3):1952-1962.
143. Polom K, Roviello G, Generali D, et al. Cytoreductive surgery and hyperthermic intraperitoneal chemotherapy for treatment of ovarian cancer. *Int J Hyperthermia*. 2016;32(3):298-310.
144. Quinn DI. Non-urothelial bladder cancer. UpToDate [online serial]. Waltham, MA: UpToDate; reviewed January 2021.
145. Randle RW, Griffith KF, Fino NF, et al. Appendiceal goblet cell carcinomatosis treated with cytoreductive surgery and hyperthermic intraperitoneal chemotherapy. *J Surg Res*. 2015;196(2):229-234.
146. Reintgen D, Cruse CW, Atkins M. Cutaneous malignant melanoma. *Clin Dermatol*. 2001;19(3):253-261.
147. Reynolds I, Healy P, McNamara DA. Malignant tumours of the small intestine. *Surgeon*. 2014;12(5):263-270.
148. Richel O, Zum Vörde Sive Vörding PJ, Rietbroek R, et al. Phase II study of carboplatin and whole body hyperthermia (WBH) in recurrent and metastatic cervical cancer. *Gynecol Oncol*. 2004;95(3):680-685.
149. Rodriguez-Bigas MA. Locoregional methods for management and palliation in patients who present with stage IV colorectal cancer. UpToDate [online serial]. Waltham, MA: UpToDate; reviewed December 2016.
150. Ryu KS, Kim JH, Ko HS, et al. Effects of intraperitoneal hyperthermic chemotherapy in ovarian cancer. *Gynecol Oncol*. 2004;94(2):325-332.
151. Sanchez-Garcia S, Villarejo-Campos P, Padilla-Valverde D, et al. Intraperitoneal chemotherapy hyperthermia (HIPEC) for peritoneal carcinomatosis of ovarian cancer origin by fluid and CO2 recirculation using the closed abdomen technique (PRS-1.0 Combat): A clinical pilot study. *Int J Hyperthermia*. 2016;32(5):488-495.
152. Sardi A, Sipok A, Baratti D, et al. Multi-institutional study of peritoneal sarcomatosis from uterine sarcoma treated with cytoreductive surgery and hyperthermic intraperitoneal chemotherapy. *Eur J Surg Oncol*. 2017;43(11):2170-2177.
153. Scaringi S, Kianmanesh R, Sabate JM, et al. Advanced gastric cancer with or without peritoneal carcinomatosis treated with hyperthermic intraperitoneal chemotherapy: A single western center experience. *Eur J Surg Oncol*. 2008;34(11):1246-1252.
154. Sebbag G, Yan H, Shmookler BM, et al. Results of treatment of 33 patients with peritoneal mesothelioma. *Br J Surg*. 2000;87(11):1587-1593.

155. Seegenschmiedt MH, Sauer R, Fietkau R, et al. Interstitial thermal radiation therapy: Five-year experience with head and neck tumors. *Radiology*. 1992;184(3):795-804.
156. Seshadri RA, Glehen O. The role of hyperthermic intraperitoneal chemotherapy in gastric cancer. *Indian J Surg Oncol*. 2016;7(2):198-207.
157. Sethna K, Mohamed F, Marchettini P, et al. Peritoneal cystic mesothelioma: A case series. *Tumori*. 2003;89(1):31-35.
158. Shamavonian R, Lansom JD, Karpes JB, et al. Impact of signet ring cells on overall survival in peritoneal disseminated appendix cancer treated with cytoreductive surgery and hyperthermic intraperitoneal chemotherapy. *Eur J Surg Oncol*. 2021;47(1):194-198.
159. Shidnia H, Hornback NB, Shen RN, et al. An overview of the role of radiation therapy and hyperthermia in treatment of malignant melanoma. *Adv Exp Med Biol*. 1990;267:531-545.
160. Spiliotis J, Tentes AA, Vaxevanidou A, et al. Cytoreductive surgery and hyperthermic intraperitoneal chemotherapy in the management of peritoneal carcinomatosis. Preliminary results and cost from two centers in Greece. *J BUON*. 2008;13(2):205-210.
161. Stewart JH 4th, Shen P, Levine EA. Intraperitoneal hyperthermic chemotherapy for peritoneal surface malignancy: Current status and future directions. *Ann Surg Oncol*. 2005;12(10):765-777.
162. Sugarbaker DJ, Gill RR, Yeap BY, et al. Hyperthermic intraoperative pleural cisplatin chemotherapy extends interval to recurrence and survival among low-risk patients with malignant pleural mesothelioma undergoing surgical macroscopic complete resection. *J Thorac Cardiovasc Surg*. 2013;145(4):955-963.
163. Sugarbaker PH, Acherman YI, Gonzalez-Moreno S, et al. Diagnosis and treatment of peritoneal mesothelioma: The Washington Cancer Institute experience. *Semin Oncol*. 2002;29(1):51-61.
164. Sugarbaker PH, Chang D. Results of treatment of 385 patients with peritoneal surface spread of appendiceal malignancy. *Ann Surg Oncol*. 1999;6(8):727-731.
165. Suzuki M, Saga Y, Tsukagoshi S, et al. Recurrent ovarian clear cell carcinoma: Complete remission after radiation in combination with hyperthermia; a case study and in vitro study. *Cancer Biother Radiopharm*. 2000;15(6):625-628.
166. Tabrizian P, Franssen B, Jibara G, et al. Cytoreductive surgery with or without hyperthermic intraperitoneal chemotherapy in patients with peritoneal hepatocellular carcinoma. *J Surg Oncol*. 2014;110(7):786-790.
167. Tabrizian P, Shrager B, Jibara G, et al. Cytoreductive surgery and hyperthermic intraperitoneal chemotherapy for peritoneal carcinomatosis: outcomes from a single tertiary institution. *J Gastrointest Surg*. 2014;18(5):1024-1031.
168. Taylor ME. Breast cancer: Chest wall recurrences. *Curr Treat Options Oncol*. 2002;3(2):175-177.
169. Tejani MA, Ter Veer A, Milne D, et al. Systemic therapy for advanced appendiceal adenocarcinoma: An analysis from the NCCN oncology outcomes database for colorectal cancer. *J Natl Compr Canc Netw*. 2014;12(8):1123-1130.

170. Tsang ES, McConnell YJ, Schaeffer DF, et al. Outcomes of surgical and chemotherapeutic treatments of goblet cell carcinoid tumors of the appendix. *Ann Surg Oncol*. 2018;25(8):2391-2399.
171. Tsao AS, Vogelzang N. Systemic treatment for unresectable malignant pleural mesothelioma. *UpToDate* [online serial]. Waltham, MA: UpToDate; reviewed January 2018.
172. Ubago-Pérez R, Matas-Hoces A, Beltrán-Calvo C, Romero-Tabares A. Quimioterapia intraperitoneal hipertérmica. Eficacia y seguridad en el tratamiento de la carcinomatosis peritoneal del cáncer de ovario. [Hyperthermic intraperitoneal chemotherapy. Efficacy and safety in the treatment of ovarian cancer peritoneal carcinomatosis] Summary. *AETSA 2012/6*. Seville, Spain: Andalusian Agency for Health Technology Assessment (AETSA); 2013.
173. Urano M, Kuroda M, Nishimura Y. For the clinical application of thermochemotherapy given at mild temperatures. *Int J Hyperthermia*. 1999;15(2):79-107.
174. van der Kaaij RT, Wassenaar ECE, Koemans WJ, et al. Treatment of PERitoneal disease in Stomach Cancer with cytoreductive surgery and hyperthermic intraPERitoneal chemotherapy: PERISCOPE I initial results. *Br J Surg*. 2020;107(11):1520-1528.
175. van der Zee J, González González D, van Rhoon GC, et al. Comparison of radiotherapy alone with radiotherapy plus hyperthermia in locally advanced pelvic tumours: A prospective, randomised, multicentre trial. Dutch Deep Hyperthermia Group. *Lancet*. 2000;355(9210):1119-1125.
176. van der Zee J. Heating the patient: A promising approach? *Ann Oncol*. 2002 Aug;13(8):1173-1184.
177. van Oudheusden TR, Braam HJ, Nienhuijs SW, et al. Poor outcome after cytoreductive surgery and HIPEC for colorectal peritoneal carcinomatosis with signet ring cell histology. *J Surg Oncol*. 2015;111(2):237-242.
178. Van Sweringen HL, Hanseman DJ, Ahmad SA, et al. Predictors of survival in patients with high-grade peritoneal metastases undergoing cytoreductive surgery and hyperthermic intraperitoneal chemotherapy. *Surgery*. 2012;152(4):617-624; discussion 624-625.
179. Vasanthan A, Mitsumori M, Park JH, et al. Regional hyperthermia combined with radiotherapy for uterine cervical cancers: A multi-institutional prospective randomized trial of the international atomic energy agency. *Int J Radiat Oncol Biol Phys*. 2005;61(1):145-153.
180. Vernon CC, Hand JW, Field SB, et al. Radiotherapy with or without hyperthermia in the treatment of superficial localized breast cancer: Results from five randomized controlled trials. International Collaborative Hyperthermia Group. *Int J Radiat Oncol Biol Phys*. 1996;35(4):731-744.
181. Verwaal VJ, Bruin S, Boot H, et al. 8-year follow-up of randomized trial: Cytoreduction and hyperthermic intraperitoneal chemotherapy versus systemic chemotherapy in patients with peritoneal carcinomatosis of colorectal cancer. *Ann Surg Oncol*. 2008;15(9):2426-2432.

182. Verwaal VJ, van Ruth S, de Bree E, et al. Randomized trial of cytoreduction and hyperthermic intraperitoneal chemotherapy versus systemic chemotherapy and palliative surgery in patients with peritoneal carcinomatosis of colorectal cancer. *J Clin Oncol*. 2003;21(20):3737-3743.
183. Westermann AM, Jones EL, Schem BC, et al. First results of triple-modality treatment combining radiotherapy, chemotherapy, and hyperthermia for the treatment of patients with stage IIB, III, and IVA cervical carcinoma. *Cancer*. 2005;104(4):763-770.
184. Wong LCK, Li Z, Fan Q, et al. Cytoreductive surgery (CRS) with hyperthermic intraperitoneal chemotherapy (HIPEC) in peritoneal sarcomatosis -- A systematic review and meta-analysis. *Eur J Surg Oncol*. 2022;48(3):640-648.
185. Wust P, Hildebrandt B, Sreenivasa G, et al. Hyperthermia in combined treatment of cancer. *Lancet Oncol*. 2002;3(8):487-497.
186. Yasukawa M, Dainty LA, Sugarbaker PH. Long-term outcomes after cytoreductive surgery and HIPEC for morcellated uterine leiomyosarcoma; A case series. *Gynecol Oncol Rep*. 2021;36:100741.
187. Yu HH, Yonemura Y, Hsieh MC, et al. Cytoreductive surgery and hyperthermic intraperitoneal chemotherapy for appendiceal goblet cell carcinomas with peritoneal carcinomatosis: results from a single specialized center. *Cancer Manag Res*. 2017;9:513-523.
188. Yu P, Ye Z, Dai G, et al. Neoadjuvant systemic and hyperthermic intraperitoneal chemotherapy combined with cytoreductive surgery for gastric cancer patients with limited peritoneal metastasis: A prospective cohort study. *BMC Cancer*. 2020;20(1):1108.
189. Zhou H, Wu W, Tang X, et al. Effect of hyperthermic intrathoracic chemotherapy (HITHOC) on the malignant pleural effusion: A systematic review and meta-analysis. *Medicine (Baltimore)*. 2017;96(1):e5532.