MEDICAL POLICY – 2.03.07

Hyperthermic Intraperitoneal Chemotherapy (HIPEC) for Select Intra-Abdominal and Pelvic Malignancies

Effective Date: Jan. 1, 2020
Last Revised: Dec. 10, 2019
Replaces: N/A

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POLICY CRITERIA | DOCUMENTATION REQUIREMENTS | CODING
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Introduction

Chemotherapy can be delivered directly into the abdominal cavity to treat certain types of cancer. However, chemotherapy has trouble penetrating large tumors. That’s why surgery is done to remove as much cancer as possible before chemotherapy is directly given into the abdomen. Removing or reducing the size of the tumor—also called debulking—provides the chemotherapy drug the best chance to kill the remaining cancer cells. There are several different types of cancer in which this treatment has been tried. This policy describes when debulking surgery followed by direct application of chemotherapy may be considered medically necessary.

Note: The Introduction section is for your general knowledge and is not to be taken as policy coverage criteria. The rest of the policy uses specific words and concepts familiar to medical professionals. It is intended for providers. A provider can be a person, such as a doctor, nurse, psychologist, or dentist. A provider also can be a place where medical care is given, like a hospital, clinic, or lab. This policy informs them about when a service may be covered.

Policy Coverage Criteria
Note: This policy addresses “perioperative” intraperitoneal chemotherapy; that is intraperitoneal chemotherapy which occurs at the same operative session as the cytoreductive or interval cytoreductive surgery. This policy does not address intraperitoneal chemotherapy which is delivered directly into the abdominal cavity through an indwelling catheter with an access port given post-operatively either in an inpatient or outpatient setting.

<table>
<thead>
<tr>
<th>Service</th>
<th>Medical Necessity</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Cytoreductive surgery plus hyperthermic intraperitoneal chemotherapy (HIPEC)</strong></td>
<td>Cytoreductive surgery plus hyperthermic intraperitoneal chemotherapy (HIPEC) at the time of surgery may be considered medically necessary for the treatment of: • Pseudomyxoma peritonei (malignant tumor of the appendix) • Diffuse malignant peritoneal mesothelioma</td>
</tr>
<tr>
<td></td>
<td>The use of HIPEC may be considered medically necessary in newly diagnosed epithelial ovarian or fallopian tube cancer at the time of interval cytoreductive surgery when ALL of the following criteria are met: • The patient has newly diagnosed stage III disease (see Related Information) • The patient is not eligible for primary cytoreductive surgery or surgery has been performed but was incomplete and the patient received 3 cycles of cis-platinum and paclitaxel systemic neoadjuvant chemotherapy immediately prior to interval-debulking surgery (see Related Information); and • Optimal cytoreduction (residual tumor nodules of &lt;10 mm is achieved at the time of the interval debulking surgery [see Related Information]) • The HIPEC agent used is cis-platinum</td>
</tr>
<tr>
<td></td>
<td>The use of HIPEC in all other settings to treat ovarian cancer, including, but not limited to stage IIIC or IV ovarian cancer is considered investigational</td>
</tr>
</tbody>
</table>
### Service

| Cytoreductive surgery plus hyperthermic intraperitoneal chemotherapy (HIPEC) | Cytoreductive surgery plus HIPEC is considered investigational for:  
• Peritoneal carcinomatosis from colorectal cancer, gastric cancer, or endometrial cancer  
• All other indications, including goblet cell tumors of the appendix |

### Documentation Requirements

The patient’s medical records submitted for review for all conditions should document that medical necessity criteria are met. The record should include the following:

1. For Cytoreductive surgery plus hyperthermic intraperitoneal chemotherapy (HIPEC) at the time of surgery:
   - Office visit notes that contain the relevant history and physical supporting any of the following diagnoses:
     - Pseudomyxoma peritonei (malignant tumor of the appendix)
     - Diffuse malignant peritoneal mesothelioma

2. For HIPEC
   - Office visit notes that contain the relevant history and physical supporting:
     - Newly diagnosed epithelial ovarian or fallopian tube cancer at the time of interval cytoreductive surgery and ALL of the following criteria:
       - The patient has stage III disease
       - The patient is not eligible for primary cytoreductive surgery or surgery has been performed but was incomplete and the patient received 3 cycles of cis-platinum and paclitaxel systemic neoadjuvant chemotherapy immediately prior to interval-debulking surgery
       - Residual tumor nodules of <10 mm is achieved at the time of the interval debulking surgery  
       **AND**
       - The HIPEC agent used is cis-platinum

### Coding

The coding for this overall procedure would likely involve codes for the surgery, the intraperitoneal chemotherapy, and the hyperthermia.
<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPT</td>
<td></td>
</tr>
<tr>
<td>96446</td>
<td>Chemotherapy administration into the peritoneal cavity via indwelling port or catheter</td>
</tr>
<tr>
<td>96549</td>
<td>Unlisted chemotherapy procedure</td>
</tr>
</tbody>
</table>

**Note:** CPT codes, descriptions and materials are copyrighted by the American Medical Association (AMA). HCPCS codes, descriptions and materials are copyrighted by Centers for Medicare Services (CMS).

**Cytoreduction**

There is no specific CPT code for the surgical component of this complex procedure. It is likely that a series of CPT codes would be used describing exploratory laparotomies of various components of the abdominal cavity, in addition to specific codes for resection of visceral organs, depending on the extent of the carcinomatosis.

**Intraperitoneal Chemotherapy**

When performed using a temporary catheter or performed intraoperatively, the unlisted code 96549 (unlisted chemotherapy procedure) would be reported.

**Hyperthermia**

This procedure does not refer to external application of heat as described by CPT code 77605. There are no codes for the heating of the chemotherapy.

**Related Information**

Ovarian cancer staging is as follows:

**Stage I:** The cancer is confined to the ovary or fallopian tube.

**Stage II:** The cancer involves one or both ovaries with pelvic extension.
**Stage III:** The cancer has spread within the abdomen.

**Stage IV:** The cancer is widely spread throughout the body.

Eligibility for neoadjuvant chemotherapy and interval debulking surgery is based on a high perioperative risk profile (ie, the patient is a poor candidate to withstand an aggressive initial cytoreductive procedure) or a low likelihood of achieving cytoreduction to less than 1 cm (ie, the patient has extensive disease that precludes upfront optimal cytoreduction) or surgery has been performed but was incomplete (ie, after surgery, one or more residual tumors measuring >1 cm in diameter were present).

Complete cytoreduction is defined as no visible disease and optimal cytoreduction as one or more residual tumors measuring 10 mm or less in diameter remaining.

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**Evidence Review**

**Description**

Cytoreductive surgery (CRS) includes peritonectomy (ie, peritoneal stripping) procedures and multivisceral resections, depending on the extent of intra-abdominal tumor dissemination. CRS may be followed intraoperatively by infusion of intraperitoneal chemotherapy with or without heating, which is intended to improve the tissue penetration of the chemotherapy. When heated, this is referred to as hyperthermic intraperitoneal chemotherapy (HIPEC). CRS and HIPEC have been proposed for a number of intra-abdominal and pelvic malignancies such as pseudomyxoma peritonei and peritoneal carcinomatosis from colorectal, gastric, or endometrial cancer.

**Background**

**Pseudomyxoma Peritonei**

Pseudomyxoma peritonei is a clinicopathologic disease characterized by the production of mucinous ascites and mostly originates from epithelial neoplasms of the appendix. Appendix cancer is diagnosed in fewer than 1000 Americans each year; less than half are epithelial neoplasms.¹ As mucin-producing cells of the tumor proliferate, the narrow lumen of the appendix becomes obstructed and subsequently leads to appendiceal perforation. Neoplastic
cells progressively colonize the peritoneal cavity and produce copious mucin, which collects in the peritoneal cavity. Pseudomyxoma peritonei ranges from benign (disseminated peritoneal adenomucinosis) to malignant (peritoneal mucinous carcinomatosis), with some intermediate pathologic grades. Clinically, this syndrome ranges from early pseudomyxoma peritonei, usually discovered on imaging or during a laparotomy performed for another reason, to advanced cases with a distended abdomen, bowel obstruction, and starvation.

**Treatment**

The conventional treatment of pseudomyxoma peritonei is surgical debulking repeated as necessary to alleviate pressure effects. However, repeated debulking surgeries become more difficult due to progressively thickened intra-abdominal adhesions, and this treatment is palliative, leaving visible or occult disease in the peritoneal cavity.²

**Peritoneal Carcinomatosis of Colorectal Origin**

Peritoneal dissemination develops in 10% to 15% of patients with colon cancer.

**Treatment**

Despite the use of increasingly effective regimens of chemotherapy and biologic agents to treat advanced disease, peritoneal metastases are associated with a median survival of six to seven months.

**Peritoneal Carcinomatosis of Gastric Origin**

Peritoneal carcinomatosis is detected in more than 30% of patients with advanced gastric cancer and is a poor prognostic indicator. The median survival is three months, and five-year survival is less than 1%.³ Sixty percent of deaths from gastric cancer are attributed to peritoneal carcinomatosis.⁴
Treatment

Current chemotherapy regimens are nonstandard, and peritoneal seeding is considered unresectable for cure.\(^5\)

Peritoneal Mesothelioma

Malignant mesothelioma is a relatively uncommon malignancy that may arise from the mesothelial cells lining the pleura, peritoneum, pericardium, and tunica vaginalis testis. In the United States, 200 to 400 new cases of diffuse malignant peritoneal mesothelioma (DMPM) are registered every year, accounting for 10% to 30% of all-type mesothelioma.\(^6\) DMPM has traditionally been considered a rapidly lethal malignancy with limited and ineffective therapeutic options.\(^6\) The disease is usually diagnosed at an advanced stage and is characterized by multiple variably sized nodules throughout the abdominal cavity. As the disease progresses, the nodules become confluent to form plaques, masses, or uniformly cover peritoneal surfaces. In most patients, death eventually results from locoregional progression within the abdominal cavity. In historical case series, treatment by palliative surgery, systemic or intraperitoneal chemotherapy, and abdominal irradiation resulted in a median survival of 12 months.\(^6\)

Treatment

Surgical cytoreduction (resection of visible disease) in conjunction with hyperthermic intraperitoneal chemotherapy (HIPEC) is designed to remove visible tumor deposits and residual microscopic disease. By delivering chemotherapy intraperitoneally, drug exposure to the peritoneal surface is increased some 20-fold compared with systemic exposure. In addition, previous animal and in vitro studies have suggested that the cytotoxicity of mitomycin C is enhanced at temperatures greater than 39°C (102.2°F).

Ovarian Cancer

Several different types of malignancies can arise in the ovaries; epithelial carcinoma is the most common, accounting for 90% of malignant ovarian tumors. Epithelial ovarian cancer is the fifth most common cause of cancer death in women in the United States. Most ovarian cancer patients (>70%) present with widespread disease, and annual mortality is approximately 65% of the incidence rate.
Treatment

Current management of advanced epithelial ovarian cancer is cytoreductive surgery (CRS) followed by combination chemotherapy. Tumor recurrences are common, and the prognosis for recurrent disease is poor.

CRS plus HIPEC in combination with systemic chemotherapy is being studied for primary and recurrent disease. Because HIPEC is administered at the time of surgery, treatment-related morbidity may be reduced compared with intraperitoneal chemotherapy administered postoperatively.

Cytoreductive Surgery Plus Hyperthermic Intraperitoneal Chemotherapy

Cytoreductive surgery (CRS) includes peritonectomy (ie, peritoneal stripping) procedures and multivisceral resections, depending on the extent of intra-abdominal tumor dissemination. CRS may be followed intraoperatively by the infusion of intraperitoneal chemotherapy, most commonly mitomycin C. The intraperitoneal chemotherapy may be heated, which is intended to improve the tissue penetration, and this is referred to as HIPEC. Inflow and outflow catheters are placed in the abdominal cavity, along with probes to monitor temperature. The skin is then temporarily closed during the chemotherapy perfusion, which typically runs for one to two hours.

CRS plus HIPEC is being evaluated for the following conditions:

- Pseudomyxoma peritonei;
- Peritoneal carcinomatosis of colorectal, gastric, or endometrial origin;
- Peritoneal mesothelioma;
- Ovarian cancer; and
- Appendiceal goblet cell tumors.
Summary of Evidence

For individuals who have pseudomyxoma peritonei who receive cytoreductive surgery (CRS) plus HIPEC, the evidence includes cohort studies and a systematic review. The relevant outcomes are overall survival (OS), disease-specific survival, quality of life, and treatment-related mortality and morbidity. Uncontrolled studies of primary treatment of pseudomyxoma peritonei with CRS plus HIPEC have reported a median and a 5-year overall survival ranging from 47 to 156 months and 41% to 96%, respectively. Two small retrospective study, of CRS plus HIPEC for recurrence indicated 5-year overall survival rates ranging from 34% to 79%. Procedure-related morbidity and mortality have decreased over time. Controlled studies are needed to draw conclusions about the efficacy and safety of CRS plus HIPEC compared with standard treatment (CRS alone). The evidence is insufficient to determine the effects of the technology on health outcomes.

For individuals who have peritoneal carcinomatosis of colorectal origin who receive CRS plus HIPEC, the evidence includes a randomized controlled trial (RCT), systematic reviews, and a large number of observational studies. The relevant outcomes are overall survival, disease-specific survival, quality of life, and treatment-related mortality and morbidity. A meta-analysis of controlled studies found that CRS plus HIPEC, compared with traditional therapy without HIPEC, was associated with significantly higher survival rates, and was not associated with significantly higher treatment-related morbidity rates. The RCT, in which patients with peritoneal carcinomatosis due to colorectal cancer were followed for at least six years, demonstrated improved survival in patients who received CRS plus HIPEC and systemic chemotherapy compared with patients who received systemic chemotherapy alone. However, procedure-related morbidity and mortality were relatively high, and systemic chemotherapy regimens did not use currently available biologic agents. The evidence is insufficient to determine the effects of the technology on health outcomes.

For individuals who have peritoneal carcinomatosis of gastric origin who receive CRS plus HIPEC, the evidence includes two small RCTs, observational studies, and a systematic review. The relevant outcomes are overall survival, disease-specific survival, quality of life, and treatment-related mortality and morbidity. A 2017 meta-analysis identified 2 RCTs and 12 controlled nonrandomized studies comparing surgery plus HIPEC with standard surgical management in patients who had peritoneal carcinomatosis due to gastric cancer. The meta-analysis found significantly better survival in the surgery plus HIPEC group at 1 year but not at two or three years. An RCT found better survival in patients who received CRS plus HIPEC compared with an alternative treatment. The evidence is insufficient to determine the effects of the technology on health outcomes.
For individuals who have peritoneal carcinomatosis of endometrial origin who receive CRS plus HIPEC, the evidence includes cohort studies. The relevant outcomes are overall survival, disease-specific survival, quality of life, and treatment-related mortality and morbidity. Only uncontrolled studies with small sample sizes were available (<25 patients). Randomized trials that compare CRS plus HIPEC with standard treatment (eg, CRS alone or systemic chemotherapy alone) are needed. The evidence is insufficient to determine the effects of the technology on health outcomes.

For individuals who have peritoneal mesothelioma who receive CRS plus HIPEC, the evidence includes retrospective cohort studies and systematic reviews. The relevant outcomes are overall survival, disease-specific survival, quality of life, and treatment-related mortality and morbidity. Uncontrolled studies have shown median and 5-year overall survival ranging from 30 to 92 months and 33% to 68%, respectively, for patients who had peritoneal mesothelioma treated with CRS plus HIPEC. Reported procedure-related morbidity and mortality were approximately 35% and 5%, respectively. Although no RCTs or comparative studies have been published, uncontrolled study data have shown reasonable rates of overall survival with the use of this technique. Procedure-related morbidity and mortality have remained steady over time. Because the prevalence of peritoneal mesothelioma is very low, conducting high-quality trials is difficult. Thus, although the evidence is insufficient to determine the effects of the technology on health outcomes, for the reasons discussed above, CRS plus HIPEC may be considered medically necessary for this indication.

For individuals who have newly diagnosed stage III ovarian cancer who receive initial cytoreductive chemotherapy followed by CRS plus HIPEC, the evidence includes an RCT. The relevant outcomes are overall survival, disease-specific survival, quality of life, and treatment-related mortality and morbidity. For patients with newly diagnosed stage III ovarian cancer who received neoadjuvant chemotherapy, HIPEC increased the time to disease recurrence and reduced mortality. HIPEC did not increase serious adverse events compared with surgery alone. The evidence is sufficient to determine that the technology results in a meaningful improvement in the net health outcome.

For individuals who have recurrent stage IIIC or IV ovarian cancer who receive CRS plus HIPEC, the evidence includes an RCT and systematic review. The relevant outcomes are overall survival, disease-specific survival, quality of life, and treatment-related mortality and morbidity. For recurrent stage IIIC or IV disease (second-line setting), evidence from an RCT indicated that CRS plus HIPEC improved survival compared with CRS without HIPEC. However, interpretation of this study is limited because treatment groups in this RCT were unbalanced at baseline (variation in the completeness of cytoreduction), which has been shown to be associated with survival. The evidence is insufficient to determine the effects of the technology on health outcomes.
For individuals who have appendiceal goblet cell tumors who receive CRS plus HIPEC, the evidence includes a case series. The relevant outcomes are overall survival, disease-specific survival, quality of life, and treatment-related mortality and morbidity. One retrospective series was identified. Additional studies - preferably controlled and ideally RCTs are needed. The evidence is insufficient to determine the effects of the technology on health outcomes.

**Ongoing and Unpublished Clinical Trials**

Some currently unpublished trials that might influence this review are listed in Table 1.

**Table 1. Summary of Key Trials**

<table>
<thead>
<tr>
<th>NCT</th>
<th>Title</th>
<th>Enrollment</th>
<th>Completion Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>NCT01815359</td>
<td>ICARuS Post-operative Intraperitoneal Chemotherapy (EPIC) and Hyperthermic Intraperitoneal Chemotherapy (HIPEC) After Optimal Cytoreductive Surgery (CRS) for Neoplasms of the Appendix, Colon or Rectum With Isolated Peritoneal Metastasis</td>
<td>220</td>
<td>Sep 2020</td>
</tr>
<tr>
<td>NCT01226394</td>
<td>Multicentric Phase III Trial Comparing Simple Follow-up to Exploratory Laparotomy Plus &quot;in Principle&quot; HIPEC (Hyperthermic Intraperitoneal Chemotherapy) in Colorectal Patients Initially Treated With Surgery and Adjuvant Chemotherapy Who Have a High Risk of Developing Colorectal Peritoneal Carcinomatosis (ProphyloCHIP)</td>
<td>130</td>
<td>Jun 2019 (unknown)</td>
</tr>
<tr>
<td>NCT02614534</td>
<td>Multicentre, Randomized Clinical Trial to Evaluate Safety and Efficacy of Hyperthermic Intra-peritoneal Chemotherapy (HIPEC) With Mitomycin C Used During Surgery for Treatment of Locally Advanced Colorectal Carcinoma</td>
<td>200</td>
<td>Oct 2020</td>
</tr>
<tr>
<td>NCT02231086</td>
<td>Adjuvant Hyperthermic Intraperitoneal Chemotherapy in Patients With Colon Cancer at High Risk of Peritoneal Carcinomatosis</td>
<td>204</td>
<td>Apr 2022</td>
</tr>
<tr>
<td>NCT02179489</td>
<td>Trial Evaluating Surgery With Hyperthermic Intraperitoneal Chemotherapy (HIPEC) in Treating Patients With a High Risk of Developing Colorectal Peritoneal Carcinomatosis</td>
<td>300</td>
<td>Oct 2023</td>
</tr>
<tr>
<td>NCT</td>
<td>Title</td>
<td>Enrollment</td>
<td>Completion Date</td>
</tr>
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<tr>
<td>NCT02240524</td>
<td>A Phase III Study of Hyperthermic Intraperitoneal Chemotherapy in the Treatment of Locally Advanced Gastric Cancer After radical Gastrectomy With D2 Lymphadenectomy</td>
<td>582</td>
<td>July 2019 (unknown)</td>
</tr>
<tr>
<td>NCT02158988</td>
<td>Prospective Multicenter Phase III Trial Using CRS With / Without HIPEC After Preoperative Chemotherapy in Patients With Peritoneal Carcinomatosis of Gastric Cancer Incl. Adenocarcinoma of the Esophagogastric Junction</td>
<td>180</td>
<td>Sep 2020</td>
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<tr>
<td>NCT02960061</td>
<td>D2 Radical Resection After Neoadjuvant Chemotherapy Combined With HIPEC for Advanced Gastric Cancer: a Prospective Randomized Controlled Trial</td>
<td>640</td>
<td>Dec 2019</td>
</tr>
<tr>
<td>NCT01882933</td>
<td>GASTRICHIP : D2 Resection and HIPEC (Hyperthermic Intraperitoneal Chemoperfusion) in Locally Advanced Gastric Carcinoma. A Randomized and Multicentric Phase III Study</td>
<td>322</td>
<td>May 2025</td>
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</table>

**Ovarian cancer**

<table>
<thead>
<tr>
<th>NCT</th>
<th>Title</th>
<th>Enrollment</th>
<th>Completion Date</th>
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</thead>
<tbody>
<tr>
<td>NCT01628380</td>
<td>Stage IIIC Unresectable Epithelial Ovarian/Tubal Cancer With Partial or Complete Response After 1st Line Neoadjuvant Chemotherapy (3 Cycles CBDCA+Paclitaxel): a Phase 3 Prospective Randomized Study Comparing Cytoreductive Surgery + Hyperthermic Intraperitoneal Chemotherapy (CDDP+Paclitaxel) + 3 Cycles CBDCA+Paclitaxel vs Cytoreductive Surgery Alone + 3 Cycles CBDCA+Paclitaxel</td>
<td>94</td>
<td>Jul 2018 (ongoing)</td>
</tr>
<tr>
<td>NCT01539785</td>
<td>Surgery Plus Hyperthermic Intra-peritoneal Chemotherapy (HIPEC) Versus Surgery Alone in Patients With Platinum-sensitive First Recurrence of Ovarian Cancer: a Prospective Randomized Multicenter Trial</td>
<td>158</td>
<td>Sep 2018 (unknown)</td>
</tr>
<tr>
<td>NCT01767675</td>
<td>A Phase II Randomized Study: Outcomes After Secondary Cytoreductive Surgery With or Without Carboplatin Hyperthermic Intraperitoneal Chemotherapy (HIPEC) Followed by Systemic Combination Chemotherapy for Recurrent Platinum-Sensitive Ovarian, Fallopian Tube, or Primary Peritoneal Cancer</td>
<td>98</td>
<td>Jan 2020</td>
</tr>
<tr>
<td>NCT02124421</td>
<td>Phase II Randomized Study: Cytoreductive Surgery (CRS) With/Without Carboplatin Hyperthermic Intraperitoneal Chemotherapy (HIPEC) Followed by Adjuvant Chemotherapy as Initial Treatment of Ovarian, Fallopian Tube, &amp; Primary Peritoneal Cancer</td>
<td>48</td>
<td>Apr 2020</td>
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<tr>
<td>NCT01376752</td>
<td>A Phase III Randomized Study Evaluating Hyperthermic</td>
<td>444</td>
<td>Apr 2025</td>
</tr>
</tbody>
</table>
Practice Guidelines and Position Statements

**National Comprehensive Cancer Network**

The National Comprehensive Cancer Network (NCCN) guidelines include the following relevant recommendations for colon cancer (v.2.2019): “The panel currently believes that complete cytoreductive surgery and/or intraperitoneal chemotherapy can be considered in experienced centers for selected patients with limited peritoneal metastases for whom R0 resection can be achieved. However, the significant morbidity and mortality associated with HIPEC, as well as the conflicting data on clinical efficacy, make this approach very controversial."\(^{40}\)

The NCCN guidelines on gastric cancer (v.2.2019) and for uterine neoplasms (v.3.2019), and rectal cancer (v.2.2019) do not discuss cytoreductive surgery (CRS) plus hyperthermic intraperitoneal chemotherapy (HIPEC).\(^{41,42,43}\)

The NCCN guidelines on ovarian cancer (v.1.2019) state that “patients with low volume residual disease after surgical debulking for stage II or II invasive epithelial ovarian or peritoneal cancer are candidates for intraperitoneal (IP) chemotherapy”\(^{44}\) and "Hyperthermic intraperitoneal chemotherapy (HIPEC) with cisplatin (11 mg/m\(^2\)) can be considered at the time of interval debulking surgery for stage III disease."

**American Society of Colon and Rectal Surgeons**

The practice guidelines on the treatment of colon cancer by the American Society of Colon and Rectal Surgeons (2017) stated that treatment of patients with isolated peritoneal carcinomatosis may include CRS in conjunction with perioperative intraperitoneal chemotherapy with or without hyperthermia.\(^{45}\)
**Society of Surgical Oncology**

The Society of Surgical Oncology (2007) issued a consensus statement on CRS and HIPEC in the management of peritoneal surface malignancies of colonic origin. The Society recommended that patients with peritoneal carcinomatosis without distant disease, in whom complete cytoreduction is possible, undergo HIPEC before systemic therapy. As of July 2018, an updated statement has not been published.

**Medicare National Coverage**

There is no national coverage determination.

**Regulatory Status**

Mitomycin, carboplatin, cis-platinum and other drugs used for HIPEC have not been approved by the U.S. Food and Drug Administration (FDA) for this indication. Cyclophosphamide and nitrogen mustard are FDA-approved for intraperitoneal administration, but neither drug is regularly used for this purpose.

Several peritoneal lavage systems (FDA product code: LGZ) have been cleared for marketing by FDA through the 510(k) process to provide "warmed, physiologically compatible sterile solution" (eg, Performer® HT perfusion system; RanD Srl). None have received marketing approval or clearance to administer chemotherapy. The FDA has issued warnings to manufacturers of devices that are FDA-cleared for peritoneal lavage using sterile saline solutions when these devices are marketed for off-label use in HIPEC (eg, ThermaSolutions; Belmont Instrument).

**Table 2. Hyperthermic Intraperitoneal Chemotherapy Devices Cleared by the US Food and Drug Administration**

<table>
<thead>
<tr>
<th>Device</th>
<th>Manufacturer</th>
<th>Date Cleared</th>
<th>510(k) No.</th>
<th>Indication</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAC Medical D-Series Blanket</td>
<td>MAC Medical Inc.</td>
<td>3/5/2019</td>
<td>K180842</td>
<td>For use in hyperthermic intraperitoneal chemotherapy</td>
</tr>
<tr>
<td>and Solution Warming Cabinets</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quantum Blood and IV</td>
<td>Life Warmer Inc.</td>
<td>1/28/2019</td>
<td>K181775</td>
<td>For use in</td>
</tr>
<tr>
<td>Device</td>
<td>Manufacturer</td>
<td>Date Cleared</td>
<td>510(k) No.</td>
<td>Indication</td>
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<td>-------------------------------------------------</td>
</tr>
<tr>
<td>Fluid Infusion Warmer</td>
<td></td>
<td></td>
<td></td>
<td>hyperthermic intraperitoneal chemotherapy</td>
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<tr>
<td>QiF Blood and Fluid Warmer</td>
<td>Quality In Flow Ltd.</td>
<td>4/27/2018</td>
<td>K180154</td>
<td>For use in hyperthermic intraperitoneal chemotherapy</td>
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<td>QiF Blood and Fluid Warmer</td>
<td>Quality In Flow Ltd.</td>
<td>9/27/2017</td>
<td>K171215</td>
<td>For use in hyperthermic intraperitoneal chemotherapy</td>
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<tr>
<td>FluidSmart</td>
<td>THERMEDX LLC</td>
<td>9/5/2017</td>
<td>K172048</td>
<td>For use in hyperthermic intraperitoneal chemotherapy</td>
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<td>Qif Blood and Fluid Warmer</td>
<td>Quality In Flow Ltd.</td>
<td>4/20/2017</td>
<td>K163708</td>
<td>For use in hyperthermic intraperitoneal chemotherapy</td>
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<td>Hang&amp;Go PAC</td>
<td>RanD S.r.l.</td>
<td>12/28/2016</td>
<td>K161613</td>
<td>For use in hyperthermic intraperitoneal chemotherapy</td>
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<tr>
<td>QiF Blood and Fluid Warmer</td>
<td>Quality in Flow Ltd.</td>
<td>6/23/2016</td>
<td>K150404</td>
<td>For use in hyperthermic intraperitoneal chemotherapy</td>
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<tr>
<td>The Belmont Hyperthermia Pump</td>
<td>Belmont Instrument Corporation</td>
<td>9/2/2015</td>
<td>K152208</td>
<td>For use in hyperthermic intraperitoneal chemotherapy</td>
</tr>
<tr>
<td>Penguin In-Line Warmer</td>
<td>Creche Innovations</td>
<td>7/9/2015</td>
<td>K150484</td>
<td>For use in hyperthermic intraperitoneal chemotherapy</td>
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References


History

<table>
<thead>
<tr>
<th>Date</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>10/11/05</td>
<td>Add to Medicine section, Oncology subsection - New Policy</td>
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<tr>
<td>06/23/06</td>
<td>Update Scope and Disclaimer - No other changes.</td>
</tr>
<tr>
<td>07/10/07</td>
<td>Replace policy - Policy updated with literature review; references added. No change in</td>
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<tr>
<td>Date</td>
<td>Comments</td>
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<tr>
<td>10/9/07</td>
<td>Cross References Updated - No other changes.</td>
</tr>
<tr>
<td>07/08/08</td>
<td>Replace policy - Policy updated with literature search; no change to the policy statement. References added.</td>
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<tr>
<td>08/11/09</td>
<td>Replace policy - Policy updated with literature search; no change to the policy statement References added.</td>
</tr>
<tr>
<td>12/14/10</td>
<td>Replace policy - Policy updated with literature search; Rationale and Background sections revised extensively. Policy statement added that cytoreduction and hyperthermic intraperitoneal chemotherapy for the treatment of pseudomyxoma peritonei may be considered medically necessary; investigational policy statement clarified to specify that the indication considered is peritoneal carcinomatosis from colorectal cancer. The term, “pseudomyxoma peritonei” was added to the policy title. References 1-8, 10-12, and 17 added; reference 18 updated.</td>
</tr>
<tr>
<td>11/08/11</td>
<td>Replace policy – Policy updated with literature search. References 2, 4 and 20 added; references renumbered. Title changed to include peritoneal mesothelioma. Policy statement added that cytoreductive surgery and perioperative intraperitoneal chemotherapy for the treatment of peritoneal mesothelioma, previously not addressed, may be considered medically necessary. Use of the term “hyperthermic” changed to “perioperative” in the title and policy statements to include early postoperative intraperitoneal chemotherapy. Use of the term “cytoreduction” changed to “cytoreductive surgery” to be more specific. CPT codes added.</td>
</tr>
<tr>
<td>01/03/12</td>
<td>Deleted code 96445 removed.</td>
</tr>
<tr>
<td>12/19/12</td>
<td>Replace policy. Policy updated with literature search. No references added. No change to policy statements. ICD-10 codes are now effective 10/01/2014.</td>
</tr>
<tr>
<td>12/09/13</td>
<td>Replace policy. Policy updated with literature search through August 2013, references 18-22, 27, and 28 added; reference 26 updated. No change to policy statements.</td>
</tr>
<tr>
<td>03/11/14</td>
<td>Coding Update. Code 99.85 was removed per ICD-10 mapping project; this code is not utilized for adjudication of policy.</td>
</tr>
<tr>
<td>12/17/14</td>
<td>Annual Review. Policy updated with literature search; policy statements unchanged. ICD-9 diagnosis and ICD-10 diagnosis and procedure codes removed; these are not utilized in adjudication of the policy.</td>
</tr>
<tr>
<td>03/10/15</td>
<td>Annual Review. Policy updated with literature review through January 2, 2015 references 4-8, 10-14, 18-19, 24, 26-35, 43, 51-61, 63-80, and 83-85 added; references 14 and 23-24 deleted. Investigational policy statement for ovarian cancer, peritoneal carcinomatosis due to gastric cancer or endometrial cancer, and for all other indications added. Medically necessary policy statement unchanged. Clarification note added to policy statement regarding perioperative Title changed to “Select Intra-Abdominal and Pelvic Malignancies” to include the additional indications. Clinical trials note added to Benefit Application.</td>
</tr>
<tr>
<td>Date</td>
<td>Comments</td>
</tr>
<tr>
<td>------------</td>
<td>-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>10/01/16</td>
<td>Annual Review, approved September 13, 2016. Policy updated with literature review through June 10, 2016; references 73 and 86 added. Policy statements unchanged.</td>
</tr>
<tr>
<td>02/01/19</td>
<td>Interim Review, approved January 8, 2019. Policy updated with literature review through September 2018; reference 34 added; references 9-10 updated; some references removed. Hyperthermic intraperitoneal chemotherapy may be considered medically necessary for the treatment of newly diagnosed stage III ovarian cancer. Policy title changed from “Cytoreductive Surgery and Perioperative Intraperitoneal Chemotherapy for Select Intra-Abdominal and Pelvic Malignancies” to “Hyperthermic Intraperitoneal Chemotherapy for Select Intra-Abdominal and Pelvic Malignancies”.</td>
</tr>
<tr>
<td>01/01/20</td>
<td>Annual Review, approved December 10, 2019. Policy updated with literature review through August 2019; references added; references on NCCN updated. Policy statements unchanged.</td>
</tr>
</tbody>
</table>

**Disclaimer:** This medical policy is a guide in evaluating the medical necessity of a particular service or treatment. The Company adopts policies after careful review of published peer-reviewed scientific literature, national guidelines and local standards of practice. Since medical technology is constantly changing, the Company reserves the right to review and update policies as appropriate. Member contracts differ in their benefits. Always consult the member benefit booklet or contact a member service representative to determine coverage for a specific medical service or supply. CPT codes, descriptions and materials are copyrighted by the American Medical Association (AMA). ©2020 Premera All Rights Reserved.

**Scope:** Medical policies are systematically developed guidelines that serve as a resource for Company staff when determining coverage for specific medical procedures, drugs or devices. Coverage for medical services is subject to the limits and conditions of the member benefit plan. Members and their providers should consult the member benefit booklet or contact a customer service representative to determine whether there are any benefit limitations applicable to this service or supply. This medical policy does not apply to Medicare Advantage.
Discrimination is Against the Law

Premera Blue Cross complies with applicable Federal civil rights laws and does not discriminate on the basis of race, color, national origin, age, disability, or sex. Premera does not exclude people or treat them differently because of race, color, national origin, age, disability or sex.

Premera:
- Provides free aids and services to people with disabilities to communicate effectively with us, such as:
  - Qualified sign language interpreters
  - Written information in other formats (large print, audio, accessible electronic formats, other formats)
- Provides free language services to people whose primary language is not English, such as:
  - Qualified interpreters
  - Information written in other languages

If you need these services, contact the Civil Rights Coordinator.

If you believe that Premera has failed to provide these services or discriminated in any way on the basis of race, color, national origin, age, disability, or sex, you can file a grievance with:
Civil Rights Coordinator - Complaints and Appeals
PO Box 91102, Seattle, WA 98111
Toll free 855-332-4535, Fax 425-918-5592. TTY 800-842-5357
Email AppealsDepartmentInquiries@Premera.com

You can file a grievance in person or by mail, fax, or email. If you need help filing a grievance, the Civil Rights Coordinator is available to help you.

You can also file a civil rights complaint with the U.S. Department of Health and Human Services, Office for Civil Rights, electronically through the Office for Civil Rights Complaint Portal, available at https://ocrportal.hhs.gov/ocr/portal/lobby.jsf, or by mail or phone at:
U.S. Department of Health and Human Services
200 Independence Avenue SW, Room S90F, HHH Building
Washington, D.C. 20201, 1-800-368-1019, 800-537-7697 (TDD)


Getting Help in Other Languages

This Notice has Important Information. This notice may have important information about your application or coverage through Premera Blue Cross. There may be key dates in this notice. You may need to take action by certain deadlines to keep your health coverage or help with costs. You have the right to get this information and help in your language at no cost. Call 800-722-1471 (TTY: 800-842-5357).

Arabic (Arabic):
لا يوجد بهذا الإشعار معلومات مهمة تخصك، أو يوجب عليك إجراء خطوات معينة.

Chinese (Chinese):
本通知有重要的訊息。本通知可能有關於您透過Premera Blue Cross提交的申請或保險的重要訊息。本通知可能有重要日期。您可能需要在截止日期之前採取行動。以保留您的健康保險或費用補貼。您有權利免費以您的母語得到本訊息和幫助。請撥電話 800-722-1471 (TTY: 800-842-5357)。

Français (French):

Deutsche (German):

Iloko (Ilocano):
Daytoy a Pakdaar ket naglaon iti Napateg nga Impormasion. Daytoy a pakdaar mabalain nga adda ket naglaon iti napateg nga impormasion maipanggep iti apliksayonyo wenno coverage babaen iti Premera Blue Cross. Daytoy ket mabalain dagiti importante a pelta iti daytoy a pakdaar. Mabalain nga adda rumbeng nga aramidenyo nga addang sakbay dagiti partikular a naituding nga adda aldaw tapo mapagatimid na coverage iti salun-atyo wenno tulong kada git gastos. Adda karbenganyo a mangala iti daytoy nga impormasion ken tulong iti bukody na pagassao nga awan iti bayadanay. Tumawag ti numero nga 800-722-1471 (TTY: 800-842-5357).

Italiano (Italian):
Questo avviso contiene informazioni importanti. Questo avviso può contenere informazioni importanti sulla tua domanda o copertura attraverso Premera Blue Cross. Potrebbero esserci date chiave in questo avviso. Potrebbe essere necessario un tuo intervento entro una scadenza determinata per consentirti di mantenere la tua copertura o sovvenzione. Hai il diritto di ottenere queste informazioni e assistenza nella tua lingua gratuitamente.

Chiamare 800-722-1471 (TTY: 800-842-5357).
Este aviso contiene información importante. Puede contener información importante privada que puede ser relevante para su seguro de salud o ayuda de salud. Para obtener más información sobre cómo puede obtener ayuda, llame al 800-722-1471 (TTY: 800-842-5357).

Román (Romanian):

Русский (Russian):
Настоящее уведомление содержит важную информацию. Это уведомление может содержать важную информацию о вашем заявлении или страховом покрытии через Premera Blue Cross. В этом уведомлении могут быть ключевые даты. Вам, возможно, потребуется привыкать к определенным предельным срокам для сохранения страхового покрытия или помощи с расходами. Вы имеете право на бесплатное получение этой информации и помощь на вашем языке. Звоните по телефону 800-722-1471 (TTY: 800-842-5357).

Español (Spanish):
Este Aviso contiene información importante. Es posible que este aviso contenga información importante acerca de su solicitud o cobertura a través de Premera Blue Cross. Es posible que haya fechas claves en este aviso. Es posible que debe tomar alguna medida antes de determinadas fechas para mantener su cobertura médica. Usted tiene derecho a recibir esta información y ayuda en su idioma sin costo alguno. Llame al 800-722-1471 (TTY: 800-842-5357).

Тагалог (Tagalog):
Ang Paunawa na ito ay naglalaman ng mahalagang impormasyon. Ang paunawa na ito ay maaaring naglalaman ng mahalagang impormasyon tungkol sa iyong aplikasyon o pagkakaroon sa pamamagitan ng Premera Blue Cross. Es posible que haya fechas claves en este aviso. Es posible que deba tomar alguna medida antes de determinadas fechas para mantener su cobertura médica o ayuda con los costos. Usted tiene derecho a recibir esta información y ayuda en su idioma sin costo alguno. Llame al 800-722-1471 (TTY: 800-842-5357).

ไทย (Thai):
ประกาศนี้มีสาระสำคัญ ประกาศนี้มีข้อมูลที่มีการอ้างถึงเกี่ยวกับการประกันสุขภาพของคุณผ่าน Premera Blue Cross และคุณมีสิทธิ์ในการรับการแจ้งเตือนว่าคุณควรจะมีการจัดการในกลุ่มที่เกี่ยวกับการประกันสุขภาพของคุณหรือตัวช่วยที่มีสิทธิ์จ่ายค่าใช้จ่าย โปรดโทรมาที่ 800-722-1471 (TTY: 800-842-5357).

Український (Ukrainian):
Це повідомлення містить важливу інформацію. Це повідомлення може містити важливу інформацію про Ваше звернення щодо страхувального покриття через Premera Blue Cross. Зверніть увагу на ключові дати, які можуть бути вказані у цьому повідомленні. Існує імовірність того, що Вам треба буде здійснити певні кроки в конкретні кінцеві строки для того, щоб зберегти Ваше медичне страхування або отримати фінансову допомогу. У Вас є право на отримання цієї інформації та допомоги безкоштовно на Вашій рідній мові. Дозвоніться за номером телефону 800-722-1471 (TTY: 800-842-5357).