

Cytoreductive Surgery with Hyperthermic Intraperitoneal Chemotherapy (HIPEC)

Welcome to the Tufts Medical Center Hyperthermic Intraperitoneal Chemotherapy (HIPEC) Program. This packet has been provided to answer frequently asked questions about our services. Please feel free to ask your care team members any additional questions that you may have.

What is Cytoreductive Surgery with HIPEC?

Cytoreductive surgery with hyperthermic intraperitoneal chemotherapy (HIPEC) is an innovative procedure used to treat cancers that have originated in or spread to the abdominal cavity, such as appendiceal cancer, pseudomyxoma peritonei, colon cancer, gastric cancer, ovarian cancer, and peritoneal mesothelioma.

The first part of the procedure is cytoreductive, where all visible tumors are surgically removed, leaving only microscopic cancer cells behind. In the process of removing the tumors, it is sometimes necessary for other organs to be partially or completely removed. The removal of an organ is only performed if the tumor cannot be separated from the organ's surface. Organs that may be removed include the gallbladder, spleen, part of the small or large intestine, and the lining of the abdominal wall (peritoneum). This cytoreductive procedure is followed by hyperthermic intraperitoneal chemotherapy (HIPEC), which aims to destroy any remaining microscopic cancer cells.

During the HIPEC portion of the procedure, a heated chemotherapy solution is delivered directly into the abdominal cavity through small tubes called catheters for approximately 90 minutes. Only a small amount of the chemotherapy is absorbed, so higher doses can be used without the systemic side effects that can occur with traditional chemotherapy. The chemotherapy solution used during the procedure is heated to between 107.6°F – 109.4°F (42-43°C), with a goal of eliminating any remaining cancer cells while preserving the healthy ones. This temperature is selected because cancer cells die at approximately 104°F (40°C), while normal cells die at approximately 111.2°F (44°C).

To watch a video of Dr. Goodman explaining the procedure, go to www.tuftsmedicalcenter.org/HIPEC

Advantages of Cytoreductive Surgery with HIPEC

Cytoreductive surgery with HIPEC has been around since the early 1980's and there are numerous scientific studies that show it can improve overall patient survival rates and quality of life.

Some types of cancers, such as those located in the abdominal cavity, are challenging to treat. Although there have been recent advancements in oral and intravenous chemotherapy agents, they can be less effective when the tumor resides on the surface of the abdominal wall and organs. When the cancer is found only on the surface of organs and has not spread into the blood stream, cytoreductive surgery with HIPEC is a good option for some patients.



Risks of Cytoreductive Surgery with HIPEC

When undergoing any surgical procedure, there is always the possibility that a complication can arise. The most common complications following cytoreductive surgery with HIPEC are bleeding and infection, which can occur with any surgery. Other less common complications include:

- The formation of blood clots in the legs that can travel to other parts of the body, such as the lungs.
- Development of an enterocutaneous fistula (an opening between the intestines and the abdominal skin) or an anastomotic leak (a leak that may occur when sections of the intestines are surgically reconnected).
- Inability to consume enough calories after surgery. When this happens, patients are given nutrition intravenously (TPN) to help keep up with their caloric needs.

What to Expect After Cytoreductive Surgery with HIPEC

Cytoreductive surgery with HIPEC is an involved procedure that lasts an average of 8-14 hours, depending on the extent of disease. Patients typically remain in the hospital for 10-12 days following surgery. Once a patient is discharged from the hospital, the team from Tufts Medical Center will work with the patient and their family to ensure that home care needs are met. This includes the coordination of a visiting nurse, physical therapist and/or occupational therapist if necessary.

Following cytoreductive surgery with HIPEC, it is not uncommon for patients to feel fatigued for 2-3 months post-operatively. While it is important to rest during this period of recovery, it is also important to get up, move around, and remain as active as possible. Remaining active will help combat fatigue as well as prevent possible complications of surgery, such as blood clots forming in the legs and pneumonia. Patients should continue doing the things they enjoy and set goals throughout their recovery. While the recovery process takes time, setting and accomplishing goals, no matter how small, helps patients realize the progress they are making throughout their recovery period.

The Importance of Nutrition in Cytoreductive Surgery with HIPEC

Nutrition plays a significant role in maintaining health and wound healing. An oncology dietitian will evaluate the patient's nutritional status both before and after surgery to ensure their caloric needs are being met. If total parenteral nutrition (TPN) is required, the dietitian will work with patients to ensure they receive the correct formulation. The dietitian also works with patients as they are weaned off TPN to ensure they continue to receive adequate nutrition. Most insurance companies cover appointments with the dietitian; however patients should confirm their coverage.

Follow-up Tests and Appointments

Patients should expect to have a follow-up appointment with Dr. Goodman or a member of his team approximately 1-2 weeks after hospital discharge. During this visit, patients will also see the oncology dietitian to evaluate their nutritional status and create an individualized patient care plan. Additionally, follow up lab work for tumor markers CEA, CA19-9, and CA125 should be drawn every 3 months for the first 2 years postoperatively, then every 6 months for years 3-5. CT scans should be performed every 6 months for the first 2 years postoperatively, then annually for years 3-5. If at any point the tumor markers are elevated, additional CT scans will be ordered.

Cytoreductive Surgery with Hyperthermic Intraperitoneal Chemotherapy (HIPEC)

What is Cytoreductive Surgery with HIPEC?

- Option for some patients with cancer that originated in or spread to their abdominal cavity
- Effective treatment option for appendiceal cancer, pseudomyxoma peritonei, colon cancer, gastric cancer, ovarian cancer, and peritoneal mesothelioma
- Two part procedure involving surgical removal of cancer followed by heated chemotherapy instilled in the abdominal cavity for approximately 90 minutes
- An effective option for treating some cancers found on the surface of organs that have not spread into the blood stream
- A video of Dr. Goodman discussing the procedure can be found at www.tuftsmedicalcenter.org/HIPEC

Advantages of Cytoreductive Surgery with HIPEC

- Cancers located in abdominal cavity are challenging to treat
- Traditional chemotherapy can be less effective in treating tumors located on the surface of the abdominal wall and organs
- Increased survival rates when compared to traditional chemotherapy regimens have been documented
- Reduction in symptoms and improvement in quality of life

Risks of Cytoreductive Surgery with HIPEC

- Bleeding
- Infection
- Formation of blood clots
- Development of an enterocutaneous fistula or an anastomotic leak
- Reduced caloric intake resulting in need for TPN

What to Expect After Cytoreductive Surgery with HIPEC

- Average hospital stay of 10-12 days
- A visiting nurse, physical therapist, and/or occupational therapist will see patients in their home following hospital discharge if needed
- Fatigue

Follow-up Tests and Appointments

- In-office appointment 2 weeks after hospital discharge which includes an appointment with a dietitian
- Tumor markers every 3 months for the first 2 years postoperatively, then every 6 months for years 3-5
- CT scan every 6 months for the first 2 years postoperatively, then annually for years 3-5
 - If tumor markers are elevated then additional CT scans will be ordered

Patient Support Websites

Tufts Medical Center – www.tuftsmedicalcenter.org

The Tufts Medical Center website provides information on the HIPEC procedure and introduces Dr. Goodman, the Director of the Peritoneal Surface Malignancy Program.

Appendix Cancer Connection, Inc. – www.appendix-cancer.com

The Appendix Cancer Connection website was created by a 10-year appendiceal cancer survivor who found there was little available information on appendiceal cancer at the time she was diagnosed. Her goal is to provide both hope and information to patients who are beginning their journey with appendiceal cancer.

Caring Bridge – www.caringbridge.com

Caring Bridge is a patient blog site that enables patients or a caregiver to update friends and family members on their progress. All blog followers have to be invited or accepted by the site manager and will receive email notifications when an update has been made.

HIPEC Treatment – www.hipectreatment.com

HIPEC Treatment is a website that provides patients with information on the HIPEC procedure. It also introduces surgeons who treat peritoneal surface malignancies and provides links hospital websites.

Imerman Angels – www.imermanangels.org

Imerman Angels is a website that provides personalized connections and enables one-on-one support among cancer fighters, survivors, and caregivers.

Neely House – <http://www.camneelyfoundation.org/TheNeelyHouse/>

The Neely House at Tufts Medical Center provides affordable bed and breakfast style accommodations for cancer patients and their families while undergoing treatment. For patients interested in staying at the Neely House, please call the Social Work Department at (617) 636-5136 and request to speak with an Oncology Social Worker.

PMP Awareness Organization – www.pmpawareness.org

The PMP Awareness Organization is a group of cancer survivors and caregivers with a goal of helping patients become informed about their medical conditions. The website was created for sharing experiences, supporting research and fundraising, and providing support to patients and their caregivers.

PMP Pals' Network – www.pmppals.org

The PMP Pals' Network helps patients who have overcome the challenges of cancer treatment communicate with one another. They also provide personalized service to help patients prepare for and recuperate from medical treatment.

PMP Research Foundation – www.pmpcure.org

The PMP Research Foundation supports and funds promising research for Pseudomyxoma Peritonei (PMP) and related Peritoneal Surface Malignancies (PSM). They also strive to support these patients and their caregivers by providing information about managing their disease.



Patient Goals

MY GOAL IS TO:	STEPS I WILL TAKE IN ORDER TO ACCOMPLISH THIS GOAL:	I ACCOMPLISHED THIS GOAL ON:

