Your Guide to
Liver Cancer Treatment at Fox Chase
If you or your loved one has been diagnosed with a liver tumor or mass, it is important that you have a good understanding of the diagnostic and therapeutic management strategies to best make an informed treatment decision. This guide was developed with you in mind. The multi-disciplinary Liver Disease Team at Fox Chase strongly believes that an engaged and educated patient is an empowered patient and is dedicated to working with you to make the best possible decisions regarding your care.

Fox Chase Cancer Center is world-renowned in the diagnosis and treatment of liver disease. The hepatitis B vaccine was discovered at Fox Chase, leading to a Nobel Prize awarded to Dr. Baruch Blumberg. **Each year, Fox Chase liver specialists treat hundreds of people for liver disease.** Patients with complex liver cancers are presented at multidisciplinary tumor boards, where specialists in surgery, hepatology, medical oncology, radiology, pathology, and interventional radiology work together to choose the best treatment plan.

“Liver cancer affected an estimated 29,000 people in 2012. It is one of the few cancers on the rise in the United States, growing at a rate of 3% a year for both men and women.”
How is Liver Cancer Diagnosed?
Masses in the liver can be cancerous or non-cancerous. Liver cancers include tumors that start in the liver (primary liver cancer) and tumors that start in another part of the body, such as the colon, breast, or pancreas, and spread to the liver (secondary, or metastatic, liver cancer).

In patients with liver masses, high-quality CAT scans and MRIs interpreted by experienced radiologists and surgeons are critical to accurate diagnosis and treatment planning. At Fox Chase, we perform CAT scans dedicated to the liver that often more accurate than CAT scans done at other hospitals. **Our liver MRIs are performed with Eovist contrast, which is a liver-specific contrast not offered at many hospitals.** The quality of MRIs at Fox Chase to diagnose liver and bile duct tumors is unsurpassed in the Philadelphia region.

Primary Liver Cancer
The rate of primary liver cancer diagnosed in the United States each year is increasing. Primary liver cancers include hepatocellular carcinoma, cholangiocarcinoma (bile duct cancer), and angiosarcoma. Hepatocellular carcinoma is the most common type of primary liver cancer and begins in hepatocytes, the main cell type in the liver. Cholangiocarcinoma (bile duct cancer) starts in ducts that carry bile in the liver. Angiosarcoma is a rare cancer that starts in the blood vessels of the liver. See the image below for an illustration.

What is Metastatic Liver Disease?
Liver tumors coming from another source (e.g., colon, stomach, and lung) are called metastases. Colon and rectal cancer that has spread to the liver is potentially curable in many patients with a combination of chemotherapy and liver surgery. Liver surgery that removes all tumors in the liver is the gold standard treatment for cancer from the colon or rectum that has spread to the liver. **In patients with many tumors in the liver, innovative strategies at Fox Chase have allowed more patients to successfully undergo surgery.**

“Every day at Fox Chase is a pleasure for me. The entire hospital is composed of people who recognize that every patient is a special cancer fighter, and therefore they all are treated as unique individuals.”

John P Hoffman, MD, FACS
Chief, Pancreaticobiliary Service
Surgical Oncology
How is Liver Cancer Treated?

Liver Resection Surgery
Because the liver regenerates, patients can undergo removal of up to 70-80% of their liver safely. Patients who are eligible for surgical removal (resection) of their liver tumors have access to the nation’s leading surgeons at Fox Chase who have vast experience with this procedure. This technique is used whenever possible, as it offers patients the greatest chance of cure.

Advances in Liver Surgery – Laparoscopy
At Fox Chase, specialist surgeons perform laparoscopic removal of tumors in certain locations of the liver. Laparoscopic surgery is performed with small incisions, a camera, and specialized instruments. Benefits of laparoscopic surgery include smaller incisions, less pain, and faster recovery.

Metastatic neuroendocrine /carcinoid tumor to the liver
Neuroendocrine tumors are generally slow-growing tumors that can occur in several organs in the body, including the pancreas and gastrointestinal tract, where they are also called carcinoid tumors. Neuroendocrine tumors often spread to the liver and can be treated with surgery.

• When surgery is not possible, other treatments offered at Fox Chase include:

• Radiofrequency or microwave ablation to kill tumor cells with heat

• Hepatic artery embolization to block the blood supply to the liver tumors

• Octreotide (Sandostatin) injections to help control symptoms and slow down tumor growth

• Targeted therapies, including sunitinib (Sutent) and everolimis (Afinitor/RAD-001) that block specific molecular pathways in neuroendocrine tumors.

CAT scan of patient before and after liver surgery at Fox Chase Cancer Center for metastatic neuroendocrine tumor (carcinoid)
Portal Vein Embolization
Patients who need 80% or more of their liver removed can undergo a procedure to make the healthy portion of the liver grow before surgery, called portal vein embolization. This procedure involves blocking blood flow to the part of the liver where tumors are located and increasing blood flow to the healthy liver.

Liver transplant for early-stage liver cancer
For some people with early-stage liver cancer, a liver transplant may be an option. Fox Chase liver specialists have partnered with Temple transplant surgeons to provide liver transplant services for adult patients with a wide range of conditions including advanced cirrhosis due to hepatitis, alcoholic liver disease, liver cancer, drug toxicity, and rare metabolic disorders.

Radiofrequency Ablation of Liver Tumors
Radiofrequency ablation is used to treat patients with liver tumors that are unresectable (unable to be surgically removed). In the procedure, Fox Chase doctors insert a thin electrode (or needle) into the center of the tumor, using a CAT scan or ultrasound to accurately guide the needle. The electrode is connected to a generator and the current destroys the tumor using heat. If the procedure does not completely sterilize the cancer, repeat treatments can be given until the tumor is eliminated.

Chemoembolization
Chemoembolization is a procedure to block blood supply to the tumor and deliver chemotherapy directly into the tumor. Blood flow to tumors provides oxygen needed for the cells to survive. When the blood flow is stopped with chemoembolization, tumor cells cannot survive, and tumors stabilize or shrink. This procedure is frequently beneficial to some patients with liver tumors.

Radioembolization
SIR-Spheres and TheraSpheres are tiny radioactive microspheres that are implanted in the liver tumor. They are carefully infused into the arteries of the liver to deliver radioactive substances to tumors within the liver. The microspheres are then trapped in the small blood vessels of the tumor and deliver radiation slowly over a period of approximately 14 days. This process destroys the tumor, while preserving healthy nearby tissue. Radioactive microspheres can target tumors of the liver, regardless of their number and location.

Stereotactic radiosurgery (Cyberknife)
For patients whose tumors are appropriate, liver tumors can be treated with stereotactic body radiation therapy (SBRT), which consists of 3-5 treatments of high dose radiation delivered with great precision. This procedure is offered at Fox Chase, but worldwide experience with Cyberknife for liver cancer is limited.

“I’ll never forget how caring and understanding the doctors and staff at Fox Chase were… I’m living proof that partnering with professionals that you feel are in line with your thinking and your desires makes all the difference in the world.”

Jessica Basciano
Chemotherapy
Patients who are not candidates for surgery may receive a hepatic artery infusion pump, to deliver chemotherapy directly into the liver. Hepatic artery infusion (HAI) is chemotherapy that is injected directly into the hepatic artery (supplying blood to the liver) through a catheter, which has been inserted surgically. With this procedure, doctors can deliver higher doses of anti-cancer therapy directly to the cancer cells in the liver, while avoiding the side effects of traditional chemotherapy. This technique may also be recommended after successful surgical removal of liver metastases to reduce the risk of recurrence.

In summary, management of liver cancer can be complex, and treatment options have changed dramatically over the past decade. The Fox Chase Liver Disease Treatment Team strongly believes that an informed patient is an empowered patient and that patient education and counseling is vital to ensuring the best possible cancer and quality of life outcomes. We take a tremendous amount of pride in providing world class, individualized care for patients diagnosed with liver cancer. Make an appointment or request a second opinion with one of our experts today.

Read More Testimonials
http://www.fccc.edu/whyChoose/testimonials/liver/index.html

"The cancer professionals at Fox Chase Cancer Center are just wonderful. I could not have asked for more knowledgeable, compassionate, and attentive people to take care of me."

Jean Kupiec
Fox Chase Liver Cancer Care Team

John P Hoffman, MD, FACS
Chief, Pancreaticobiliary Service
Surgical Oncology

Yun Shin Chun, MD, FACS
Attending Surgeon
Surgical Oncology

Elin R Sigurdson, MD, PhD, FACS
Chief, Division of General Surgery

James C Watson, MD, FACS
Attending Surgeon
Surgical Oncology

John Michael Daly, MD, FACS
Attending Surgeon
Surgical Oncology

Nestor F. Esnaola, MD, PhD, FACS
Chief of Surgical Oncology at Temple University Hospital

Andreas Karachristos, MD, PhD, FACS
Attending Surgeon
Surgical Oncology

Steven J Cohen, MD
Chief, Gastrointestinal Medical Oncology

Joshua E Meyer, MD
Attending Physician, Radiation Oncology

Make an Appointment or Request a Second Opinion | 1-888-FOX-CHASE
Map

For directions by car and public transportation, call 1-888-FOX CHASE or visit our website at www.foxchase.org/information/directions