

Liver Cancer: Diagnosis and Treatment Options

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Your Liver

- Largest internal organ
- Located in the upper right side of your abdomen behind the rib cage
- Divided into right and left lobes
- Holds 13% of body's blood supply
- Only organ that can regenerate
- You cannot live without a liver

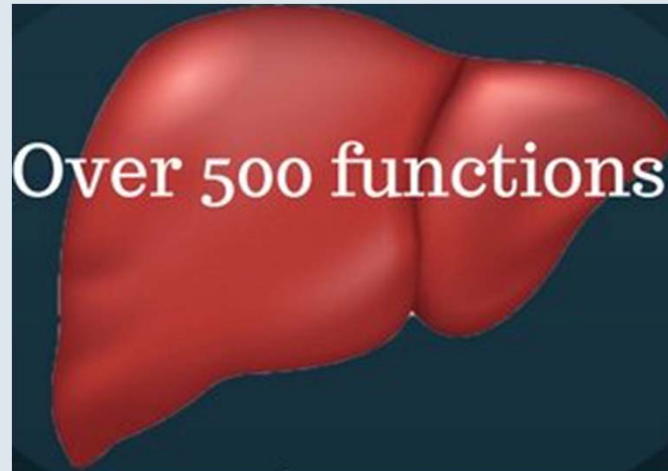


What Does Your Liver Do?

Removes potentially toxic by-products of certain medications

Breaks down nutrients from food to produce energy

Helps your body fight infection by removing bacteria from the blood



Makes proteins that help stop bleeding from cuts and wounds

Makes bile which is a fluid that helps you digest food

Prevents shortages of nutrients by storing vitamins, minerals and sugar

Stages of Liver Damage



Primary Liver Cancer

- More common to develop liver cancer that has spread from somewhere else in the body (liver metastases)
- Primary liver cancer begins in the liver itself
 - 16,000-20,000 Americans are diagnosed each year
 - Numbers are growing
 - Most common primary liver cancer is hepatocellular carcinoma (HCC)
 - Very aggressive tumor
 - Typically diagnosed late in its course
 - Median survival following diagnosis is 6-20 months



HCC Risk Factors

- Presence of cirrhosis
- Can be due to
 - Chronic hepatitis B or hepatitis C viral infection
 - Excessive alcohol use
 - Fatty liver disease (linked to diabetes and obesity)
 - Genetic liver disease (A1 antitrypsin deficiency, iron overload)
 - Autoimmune liver disease (autoimmune hepatitis, primary biliary cholangitis, primary sclerosing cholangitis)
 - Environmental toxins

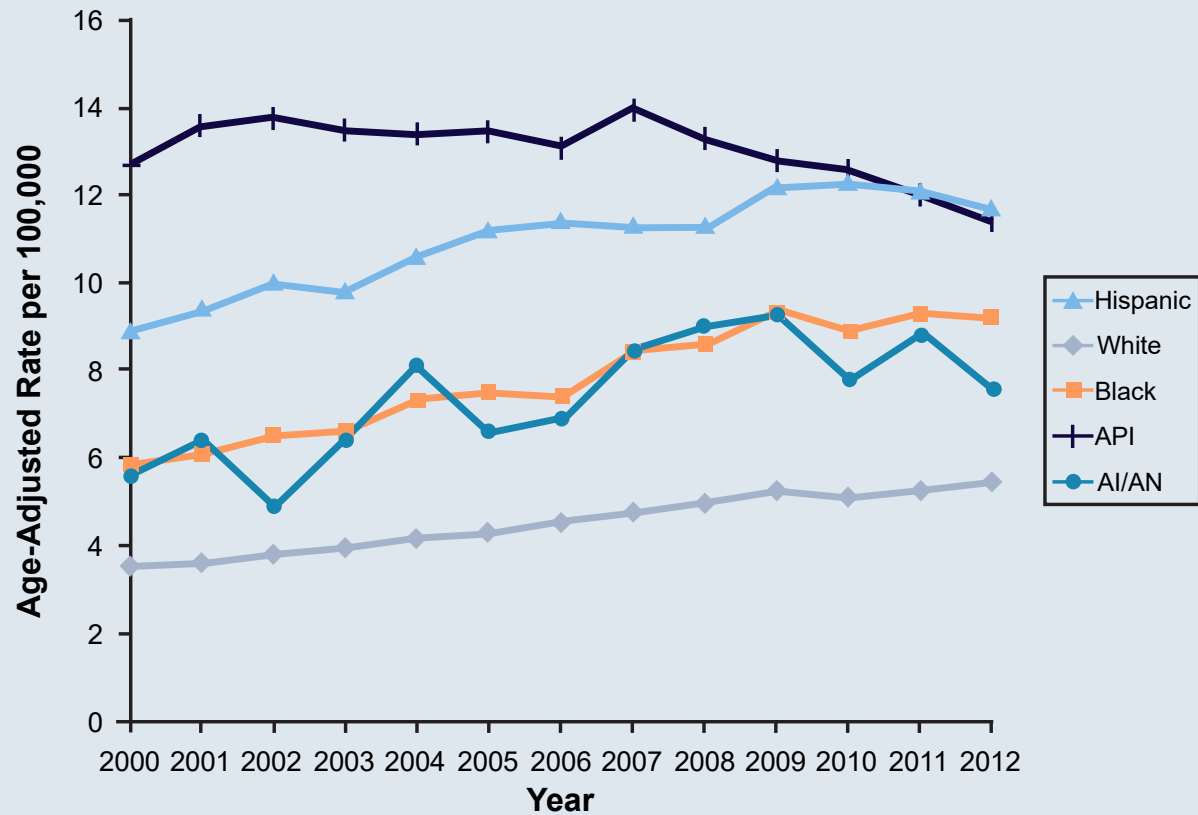


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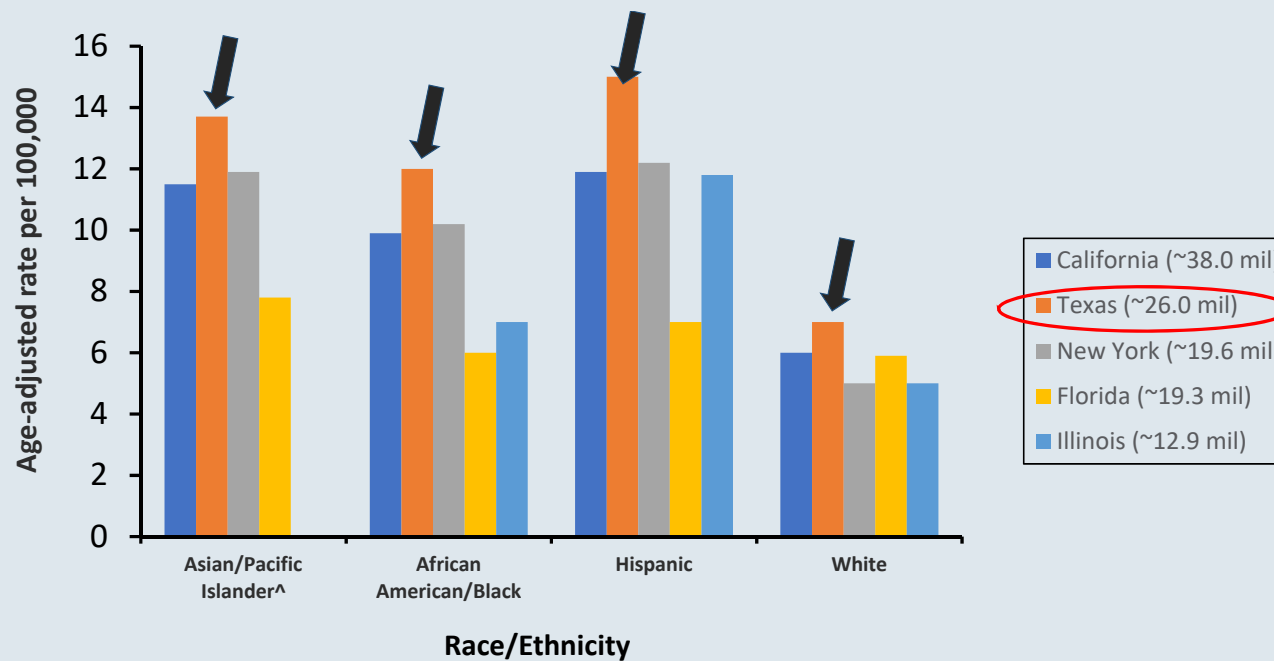
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HCC Rates in the United States



El Serag. *Gastro*. 2017.

HCC Rates in Texas by Race/Ethnicity

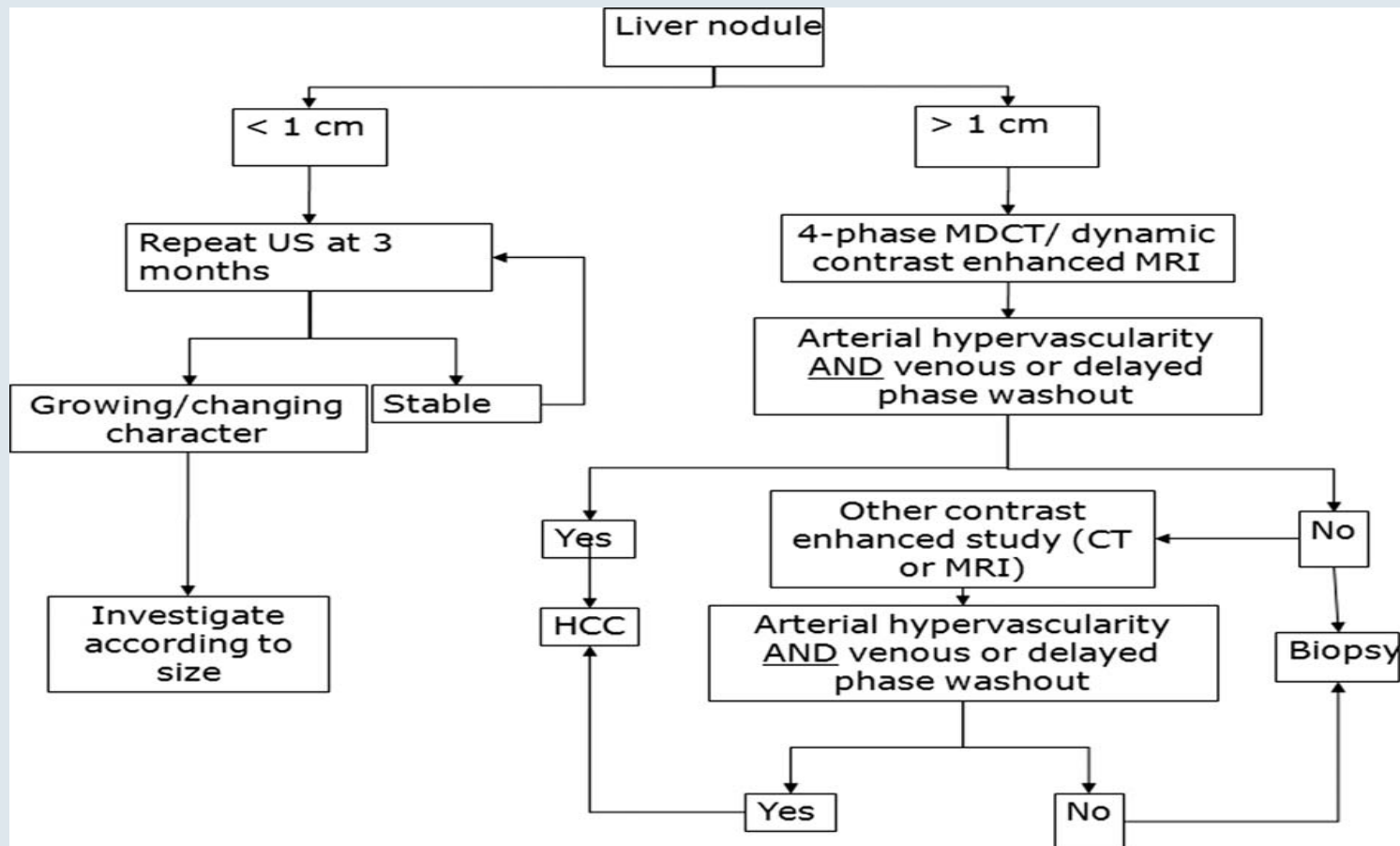


Supplementary Figure 3. Age-adjusted rates for HCC by race/ethnicity in the 5 most populous US states in 2012.

Diagnosing Liver Cancer

- Blood tests
- Abdominal ultrasound
- MRI scan
- CT scan
- Liver biopsy

Diagnosing Based on Scans-we rarely biopsy



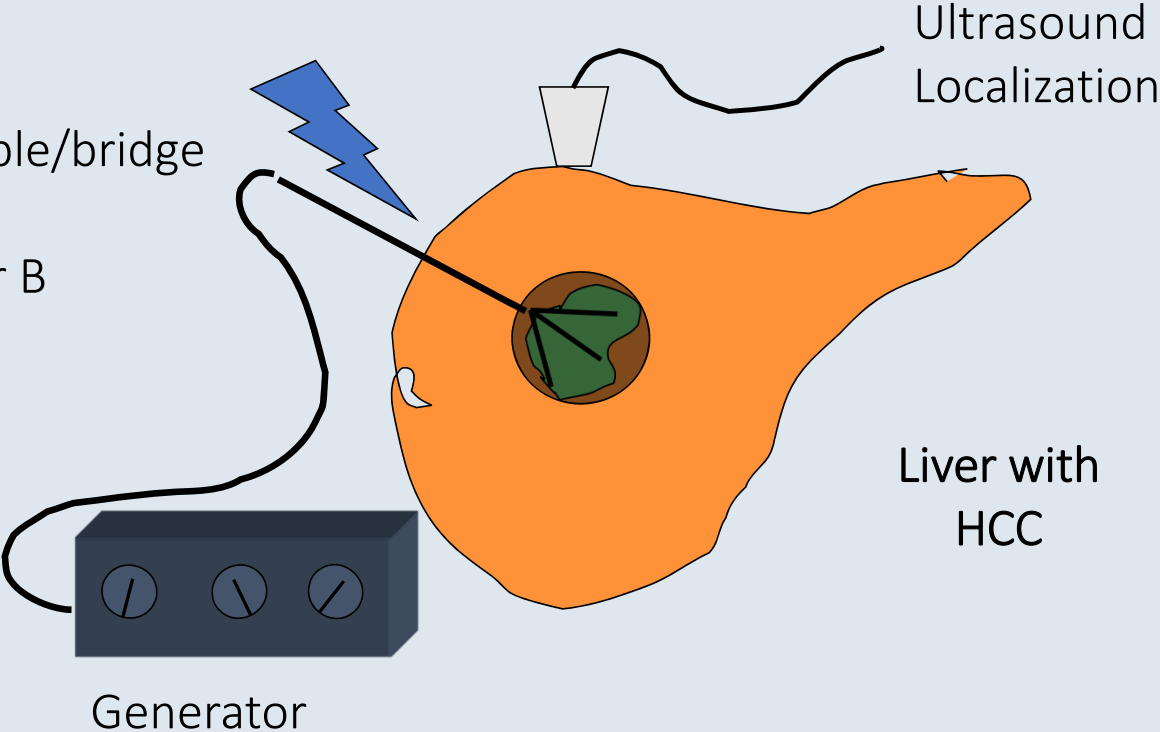
HCC Treatment

- Depends on the size, number and location of tumor(s)
- Options
 - Ablation techniques
 - Radiofrequency ablation (RFA)
 - Percutaneous alcohol injection (PEI)
 - Cryoablation
 - Microwave ablation
 - Transarterial chemoembolization (TACE)
 - Liver resection
 - Oral medication
 - Liver transplantation

Radiofrequency Ablation (RFA)

Indications:

- Unresectable/bridge
- Confined
- Child's A or B

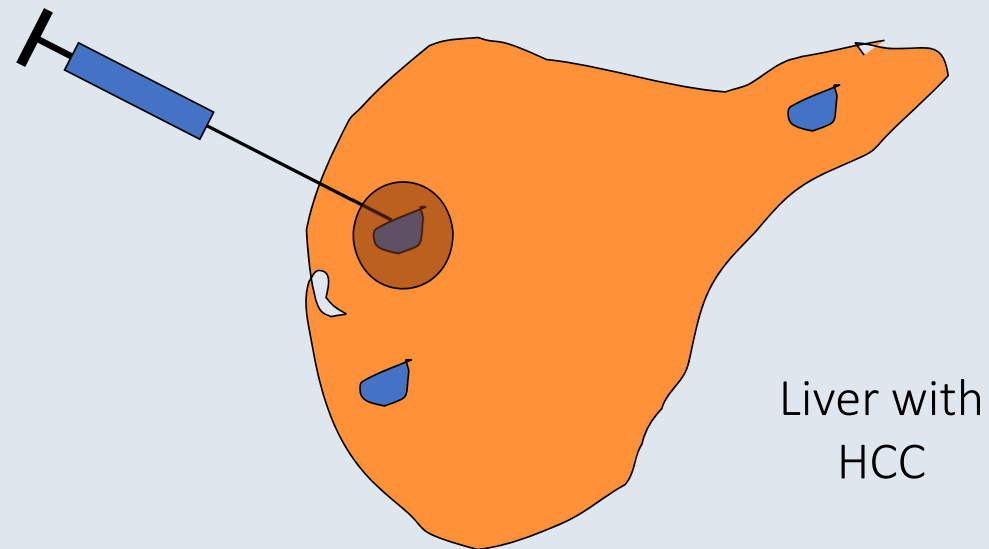


Radiofrequency Ablation (RFA)

- Achieves complete necrosis of up to 4 cm diameter
- RCTs showing RFA > PEI for local control of HCC > 3cm in less sessions
- CR in 55% (by explant)
- Predictors of poor response:
 - Size (< 5cm – CR 61%; > 5cm - CR 24%)
 - Infiltrative/satellite lesions
 - Poor differentiation
- Recurrence @ 1, 3, 5 yrs = 26 – 32%, 51 – 81%, 60 – 83%
- Severe complications (1 – 12%), mortality (0.1 – 0.5%), tumor dissemination 0.6%

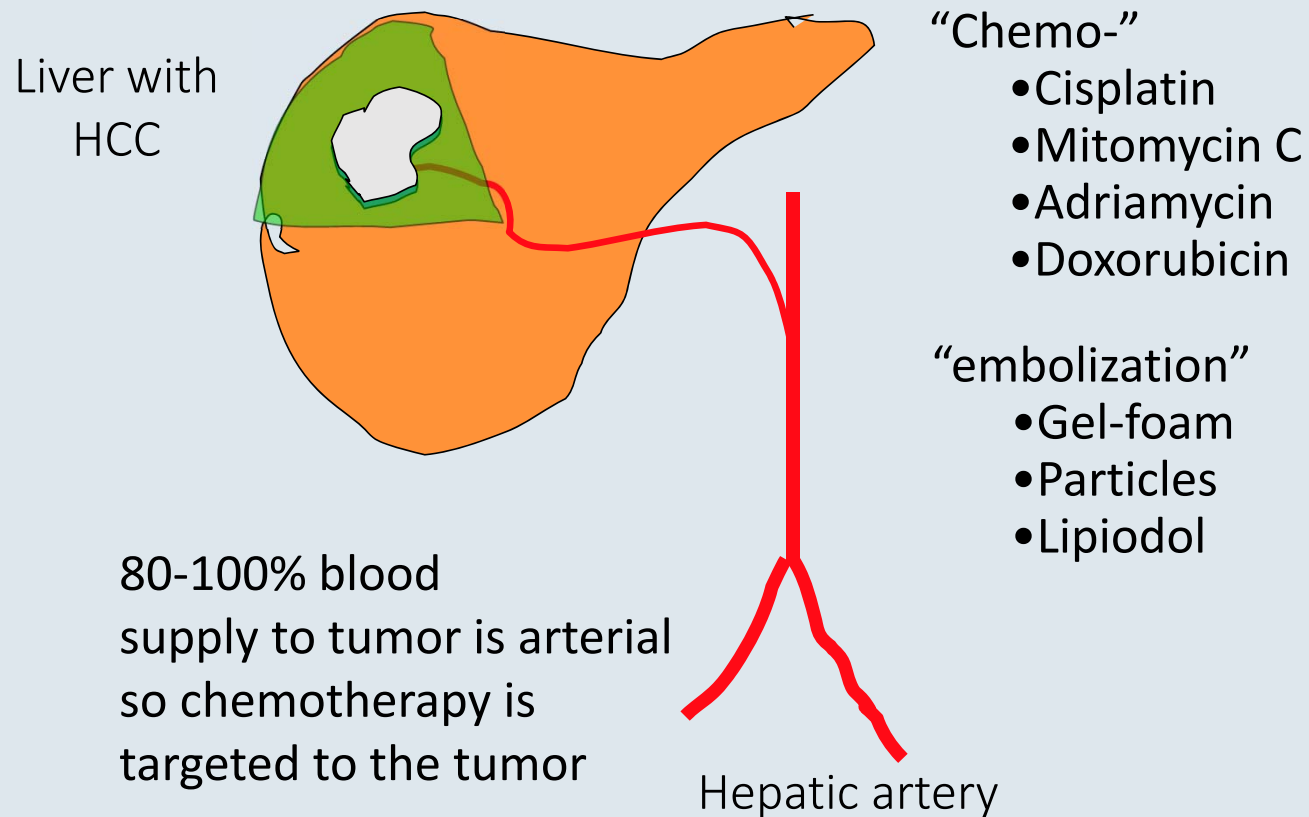
Percutaneous Alcohol Injection (PEI)

- Long history
 - Alcohol (95%)
 - Hypertonic saline
 - NaOH (2N)
 - Acetic Acid*



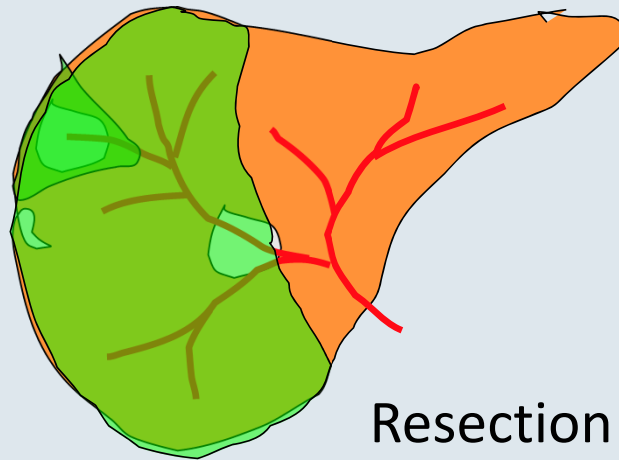
May be preferable in high-risk RFA

Chemoembolization (TACE)



Resection

Liver with
HCC



Like in real estate:
Location
Location
Location

Resection determinants:

- Extent of liver disease
- Anatomy vs tumor location

Drugs Approved to Treat HCC (Unresectable)

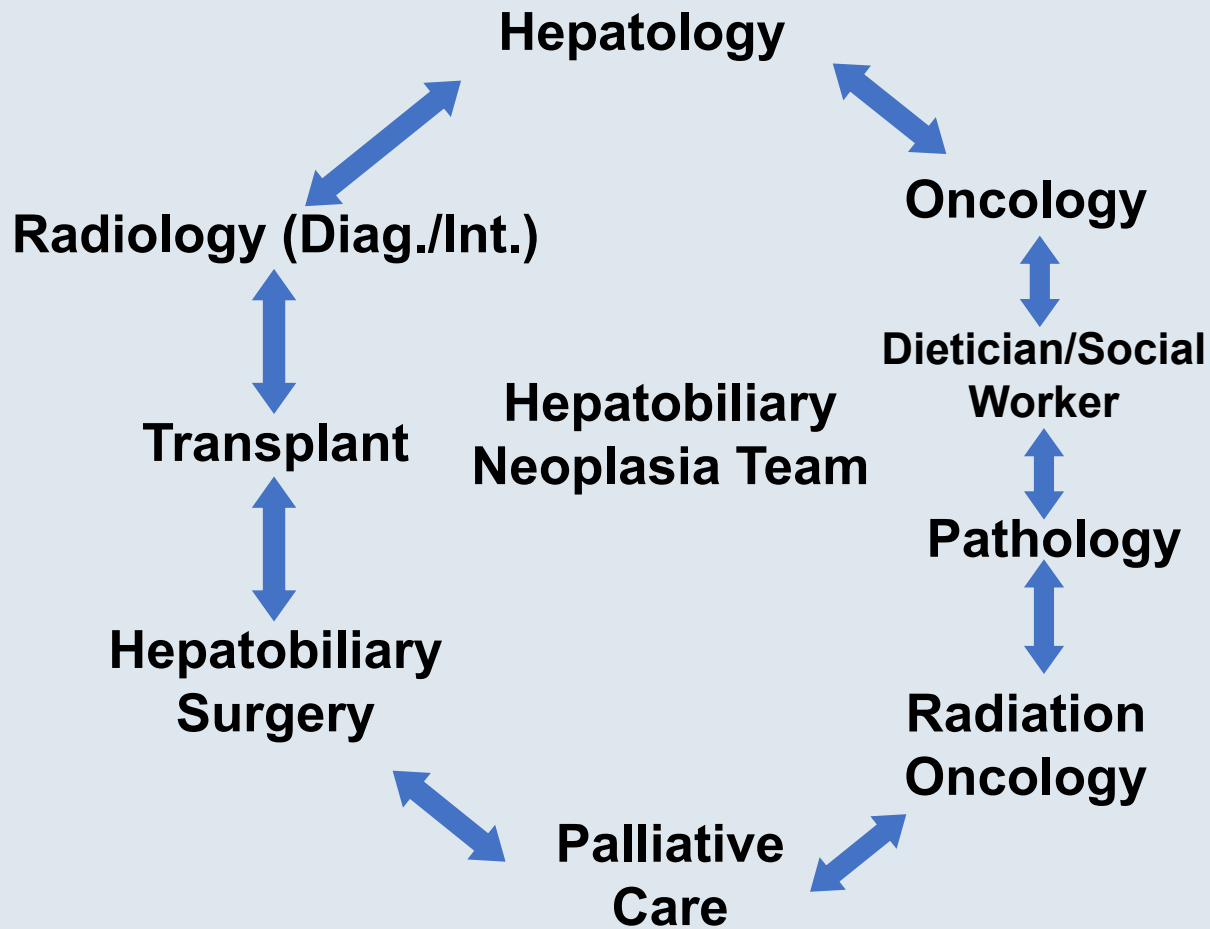
- Lenvatinib (LENVIMA)
- Nivolumab (OPDIVO)
- Pembrolizumab (KEYTRUDA)
- Regorafenib (STIVARGA)
- Sorafenib (NEXAVAR)

Liver Transplantation

- Liver transplant treats HCC and underlying liver disease
- Proper patient selection yields 5 year overall survival ~75%
- Treatment related mortality is 1-5%
- Best option; however, limited supply of deceased donor organs
 - Model for End Stage Liver Disease (MELD) is complex equation that predicts mortality from complications of cirrhosis
 - Used to allocate deceased donor organs



Multidisciplinary Care



Summary

- Liver cancer is fastest growing cancer in America
- Highest prevalence in South Texas Hispanics
- Survival depends on early diagnosis
- Treatment options continue to improve with excellent survival when found early
- Requires multidisciplinary approach for ideal outcomes
- UT Health and Mays Cancer Center very involved in HCC Research to promote discovery and advance care

