

# Screening, Diagnosis, and Management of Hepatocellular Carcinoma – a Texas Epidemic



Nicole Loo, MD  
Texas Liver Institute/UT San Antonio



# Outline

- **Why Focus on Hepatocellular Carcinoma (HCC)?**
- **How to Screen & Diagnose HCC**
- **How to Manage HCC**
- **New Oral HCC Therapies**

# Outline

- **Why Focus on Hepatocellular Carcinoma (HCC)?**
- **How to Screen & Diagnose HCC**
- **How to Manage HCC**
- **New Oral HCC Therapies**

# Hepatocellular Carcinoma (HCC)



- **Primary tumor of the liver** that usually develops in the setting of chronic liver disease
- Cirrhosis (all etiologies), chronic hepatitis B without cirrhosis, and even NASH without cirrhosis (up to 13% in the VA)

# Hepatocellular Carcinoma (HCC) is a Global Problem

- Worldwide
  - 5<sup>th</sup> most common cancer in men
  - 9<sup>th</sup> most common cancer in women
- **Yet, 2<sup>nd</sup> most common cause of cancer-related deaths worldwide**  
~746,000 deaths in 2012
- 76% of HCC worldwide is in Asia

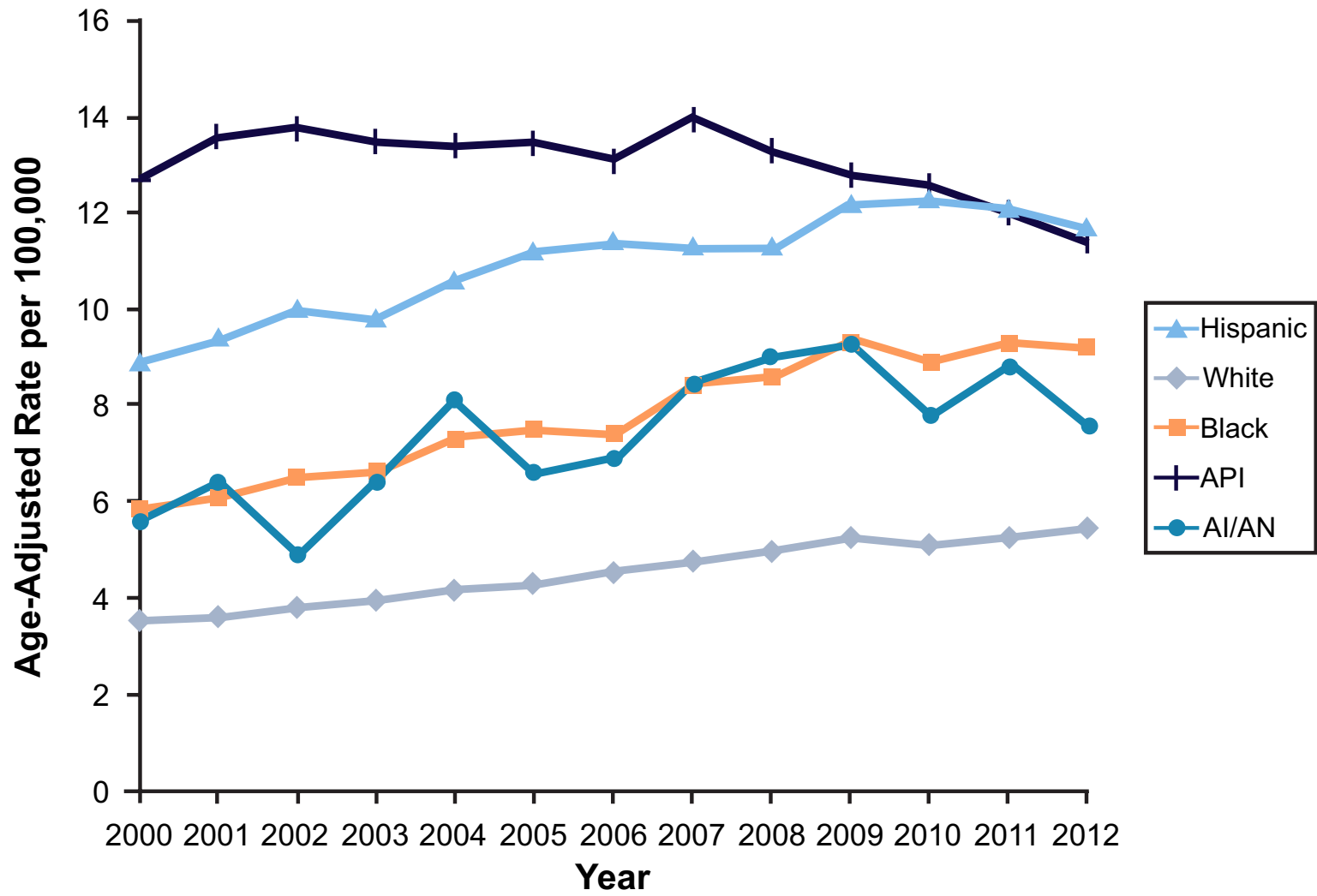


# HCC is a United States Problem

- US HCC incidence **has tripled since 1980**
- **5<sup>th</sup> highest cause of cancer-related death in US** (Behind lung, colon, pancreas, and breast)
- US HCC **5 year-survival is still low at <12%**
- HCC will continue to increase until **2030** with highest increase in **Hispanics > Blacks > Caucasians**



# In the US, Hispanics > Asians have Highest Rate of HCC (2011-2012)



El Serag et al,Gastro 2017;152:812-20.

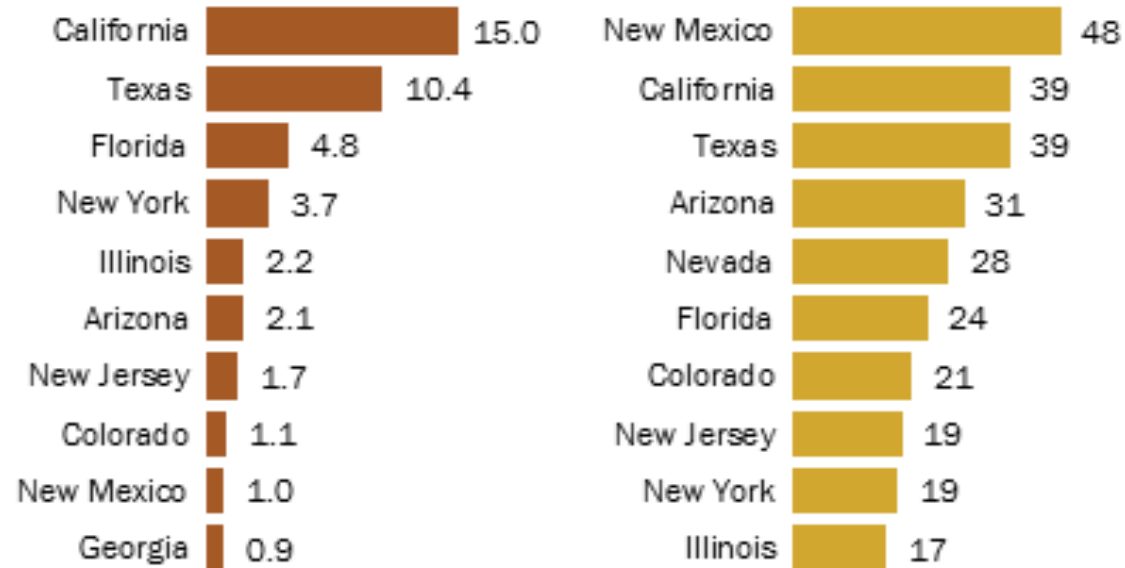


# To Note, California with Highest # of Hispanics

## Top Latino states in 2014, by population and share

*Millions*

*% of population that is Latino*



Note: Charts show the top 10 states for the number of Latinos and the share of the population that is Latino.

Source: Pew Research Center tabulations of the 2014 American Community Survey (IPUMS)

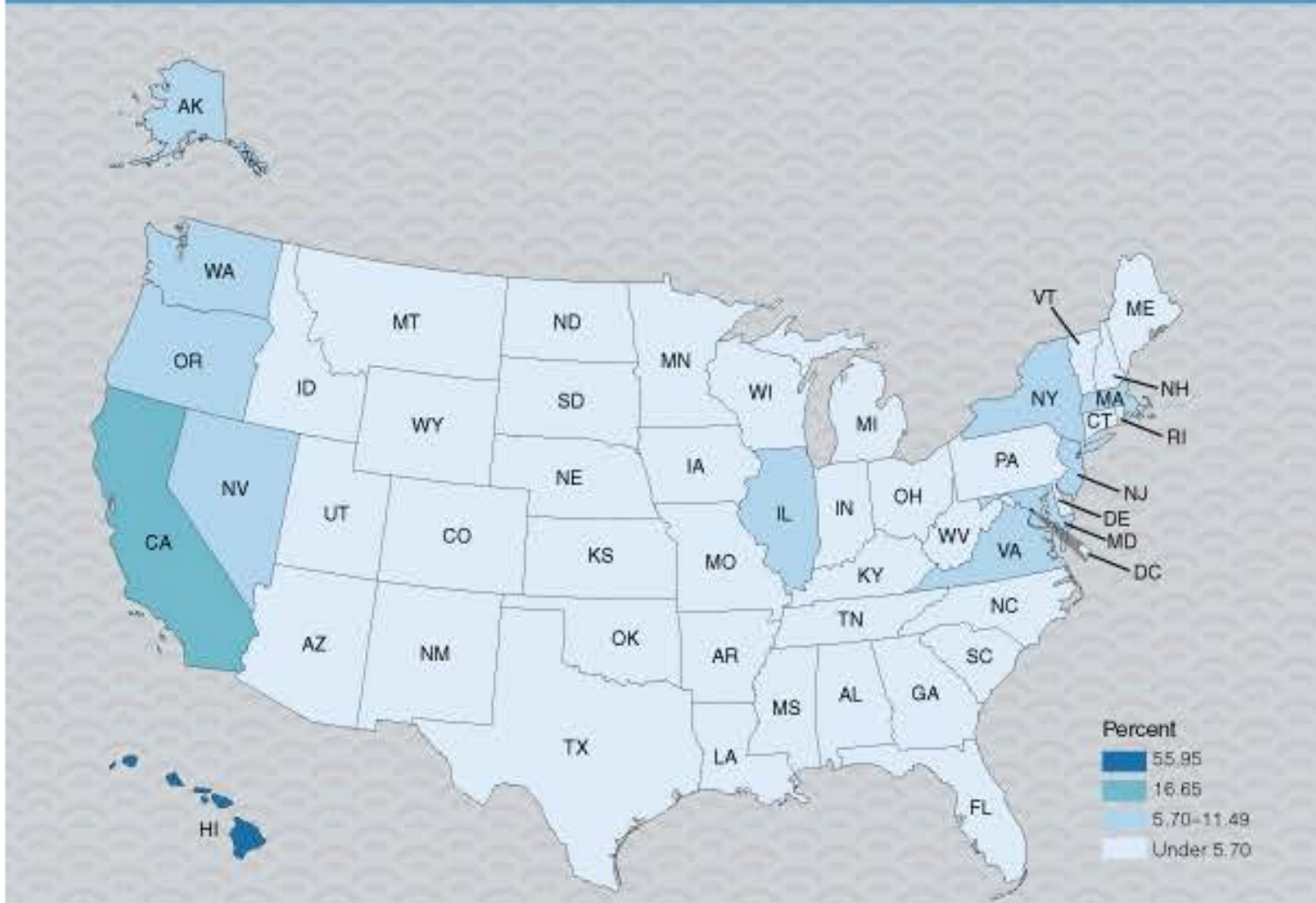
"U.S. Latino Population Growth and Dispersion Has Slowed Since Onset of the Great Recession"

PEW RESEARCH CENTER



# Asian Population Percentage by State

Asian-American and Pacific Islander Heritage Month: 2017



And  
Hawaii with  
Highest # of  
Asians

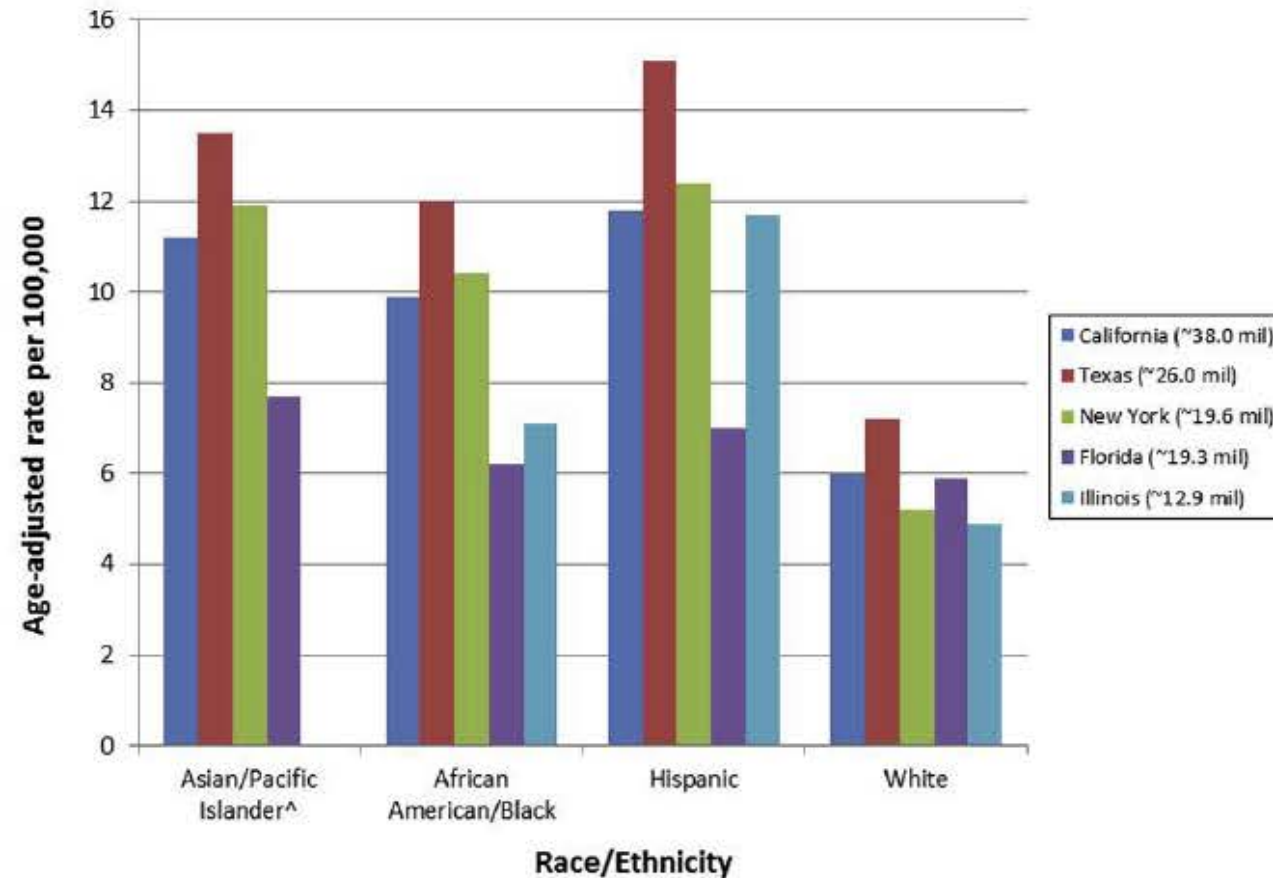
# YET, Texas is #1 in HCC Rates in the USA

- By **2012**, Texas has the highest rates of HCC in the nation
  - **Texas 9.71**[95% CI, 9.33–10.33] per 100,000
  - **Hawaii 9.68** [95% CI, 8.22–11.33] per 100,000

Hawaii is 55.9% Asian as per the US Census in 2017. Recall Asians previously with highest HCC rate...



# For Every Ethnic Group, Texas has Highest HCC Rate in 2012

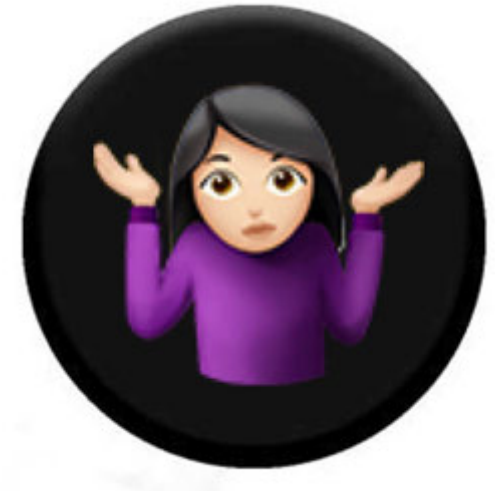


Adjusted U.S. 2000 Standard Population; ^Data suppressed for Illinois because of sample size privacy rules.

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

# Why Does Texas Have Highest HCC Rate in Every Ethnic Group?

- Decreased access to screening, diagnosis, and treatment (especially HCV treatment)?
  - TX did not adopt Medicaid expansion as part of the ACA
- Tacos:person ratio?
- Too hot to exercise here?
- More alcohol use because we are indoor more because it is too hot to exercise here?



# Interestingly, South Texas (i.e. “HCC Hot Zone”) has the Most HCC

- **South Texas region accounts for more than half of the incident cases of HCC in Texas overall!**
- **70% of South Texas is Hispanic**
- **Why???**

Texas Regions Map



Description: Texas regions map showing the 7 regions of Texas state of USA.

# Outline

- **Why Focus on Hepatocellular Carcinoma (HCC)?**
- **How to Screen & Diagnose HCC**
- **How to Manage HCC**
- **New Oral HCC Therapies**



# Clinic Patient

**HPI:** 63 yo Hispanic lady with PMH of obesity (BMI 36), type II DM (HbA1c 6.8%), HTN, hyperlipidemia, and compensated NASH cirrhosis who is here for her q6 month follow up. **To discuss with her today a newly found liver lesion seen on screening ultrasound.**

# AASLD 2018 Recommendations for HCC Screening

- **Cirrhosis (all etiologies)**
  - HCC incidence rate is 2-8%/year
- **Chronic hepatitis B carriers who are Asian man (>40 yo), Asian woman (>50 yo), or African blacks**
  - HCC incidence rate is 0.4%-unknown
- **Chronic hepatitis B with family history of HCC**
  - HCC incidence rates are > than those without family history

**AASLD recommends HCC screening every 6 months  
with ultrasound +/- AFP**



# Hepatocellular Carcinoma (HCC)

- Recommendations to perform imaging every 6 months as doubling time of HCC is 3-6 months
- Goal to **diagnose** when HCC is **early** (i.e.  $\leq 2$  cm) as more treatment options can be made available
- However, HCC is often diagnosed too late
  - Lack of symptoms of HCC until it is already advanced
  - HCC screening may not be done routinely

# AFP is not PERFECT as a screening test for HCC

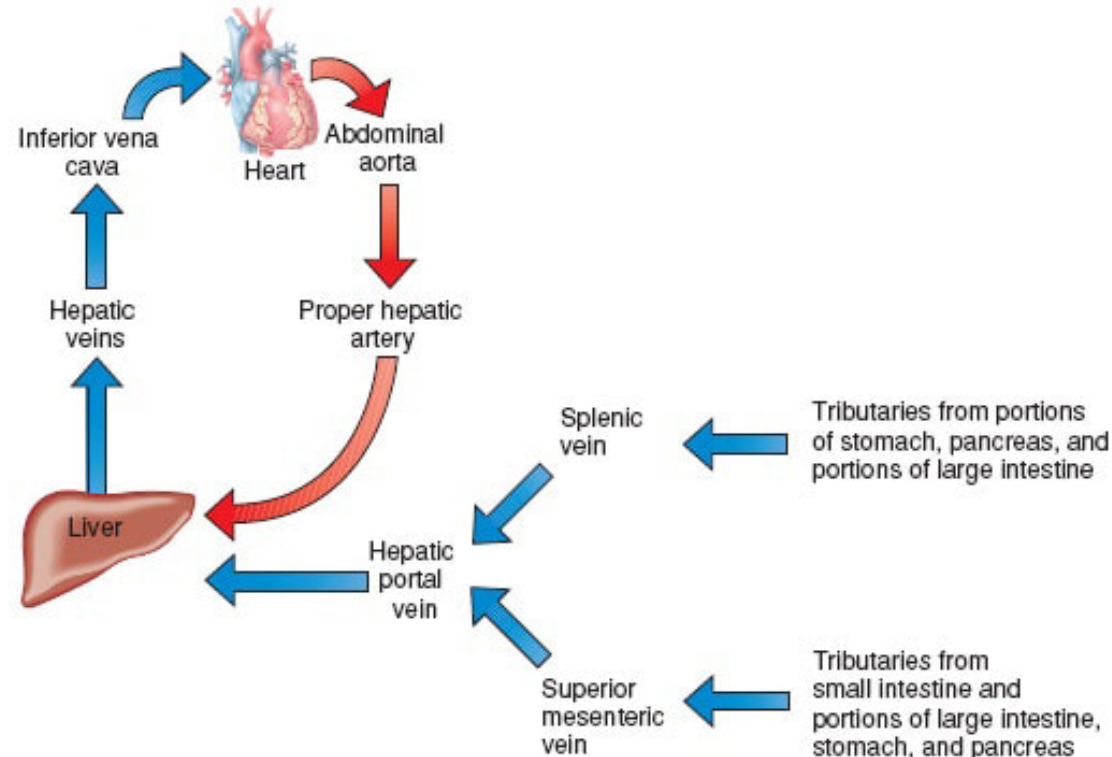
- **AFP**
  - Sensitivity of 66%
  - Specificity of 82%
- Assuming a **5% HCC prevalence rate** in liver clinic, the positive predictive value of an **AFP of 20 ng/mL** is **41.5%**

# Back to the Patient

- **US : Liver with irregular border and nodular contour. Increased echogenicity consistent with hepatic steatosis or hepatic fibrosis. 1.8 cm hyperechoic lesion in segment VIII. Splenomegaly.**
- **AFP: 4 (normal)**

# Diagnosis of HCC

- Generally made by pursuing **triphasic CT of liver or MRI with GAD.**
- **Diagnosis can be made on imaging characteristics of the lesion based on dual blood supply to the liver**



(b) Scheme of principal blood vessels of hepatic portal circulation and arterial supply and venous drainage of liver

# Diagnosis of HCC

- Generally made by pursuing **triphasic CT of liver or MRI with GAD.**  
(Diagnosis can be made on imaging characteristics of the lesion based on dual blood supply to the liver.)

Normal liver parenchyma is supplied for **80% by the portal vein** and only for **20% by the hepatic artery**. Normal liver will enhance in the portal venous phase.

All liver tumors get **100% of their blood supply from the hepatic artery**, so when they enhance it will be in the arterial phase.

- **There can be atypical features seen on imaging.** If there is high suspicion for HCC (ie elevated AFP, growth in size, etc) or an indeterminate concerning lesion, then can pursue biopsy.

# Further Investigation

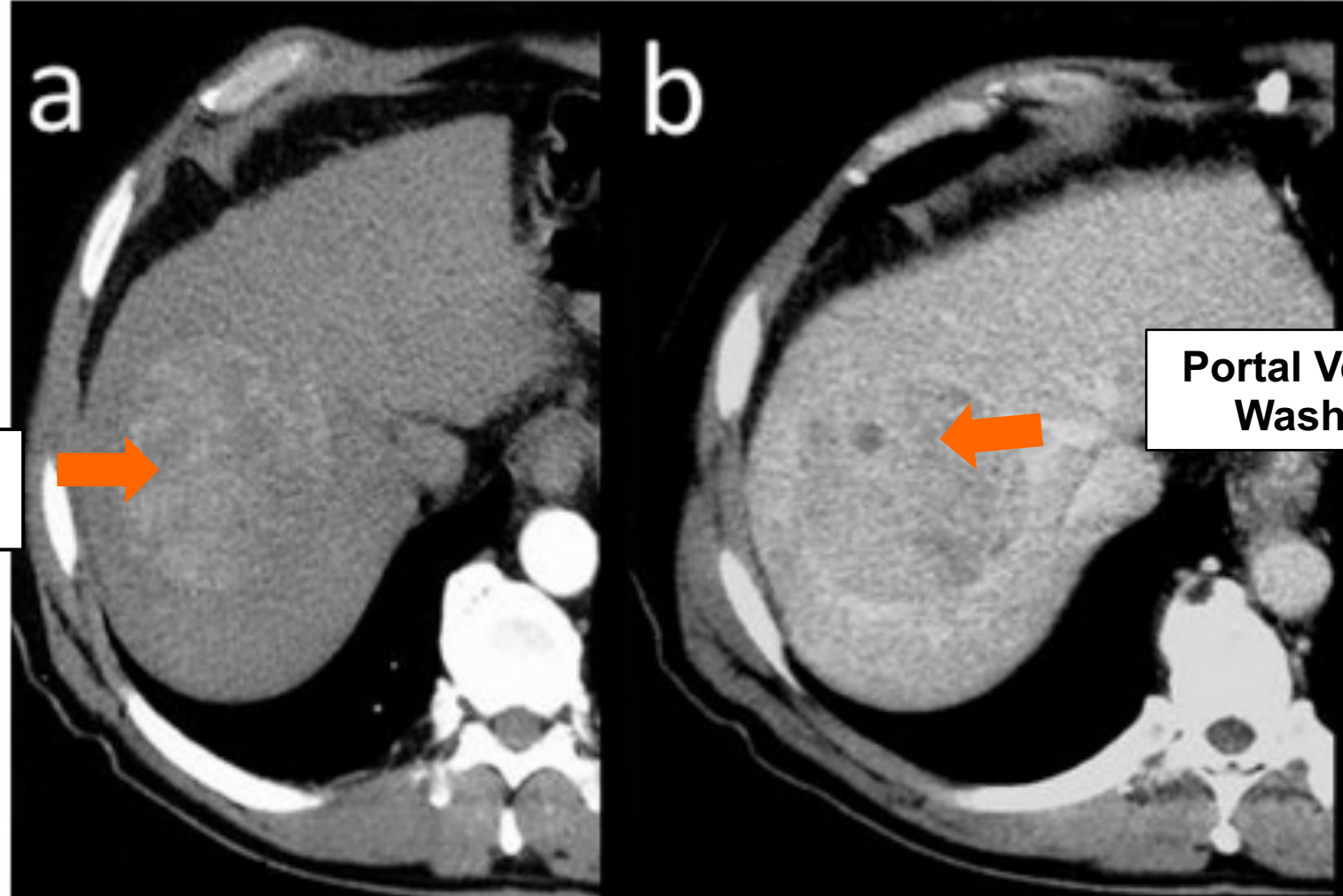
- **CT Triphasic Liver with Contrast**

Nodular appearance of liver consistent with cirrhosis. 2.0 cm lesion seen in segment VIII with arterial enhancement and portal venous washout consistent with **hepatocellular carcinoma**.

# Diagnosis of HCC

Cross-sectional imaging can be sufficient to diagnose HCC and biopsy often not needed

Arterial Enhancement



Portal Venous Washout

# Outline

- **Why Focus on Hepatocellular Carcinoma (HCC)?**
- **How to Screen & Diagnose HCC**
- **How to Manage HCC**
- **New Oral HCC Therapies**



# Back to the Patient

**SUMMARY:** 63 yo Hispanic lady with PMH of metabolic syndrome and compensated NASH cirrhosis who is found to have a 2 cm hepatocellular carcinoma as confirmed by triphasic CT of liver.

- **CT CHEST non-con done and negative for metastasis**
- **She overall is feeling well and able to perform ADLs**

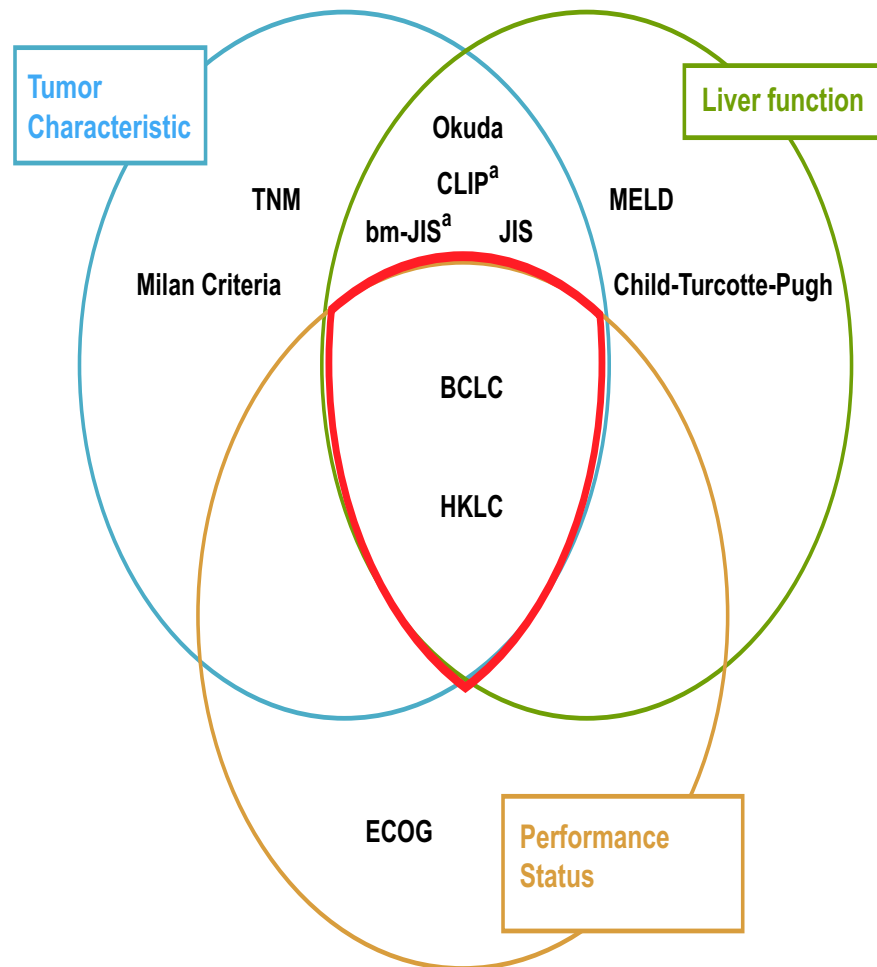
**What is next for treatment of her newly diagnosed hepatocellular carcinoma?**

# HCC Treatment



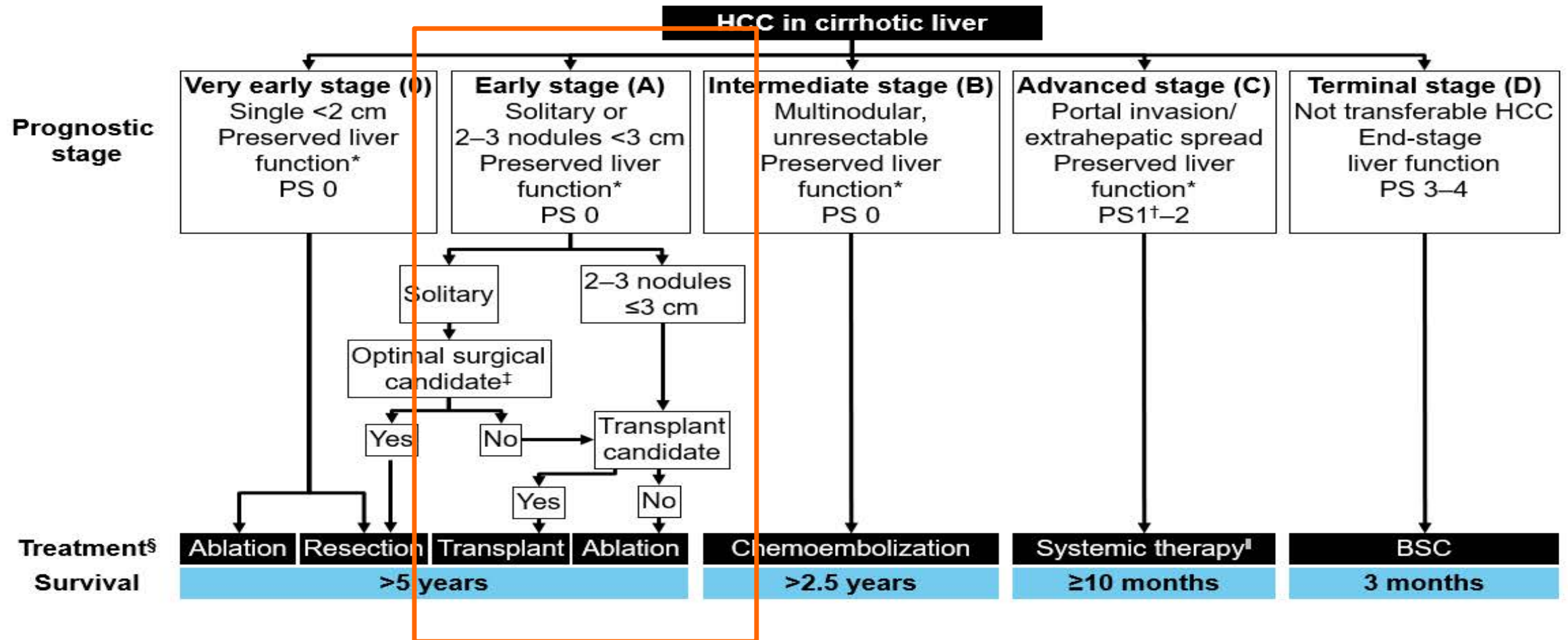
- It's actually really complicated.
- Treatment of a liver cancer depends on number of factors:
  - Liver function
  - Performance status/age
  - Size of tumor
  - Location of tumor
  - Transplant candidacy
  - Funding
  - Your center's expertise

# HCC Staging Systems

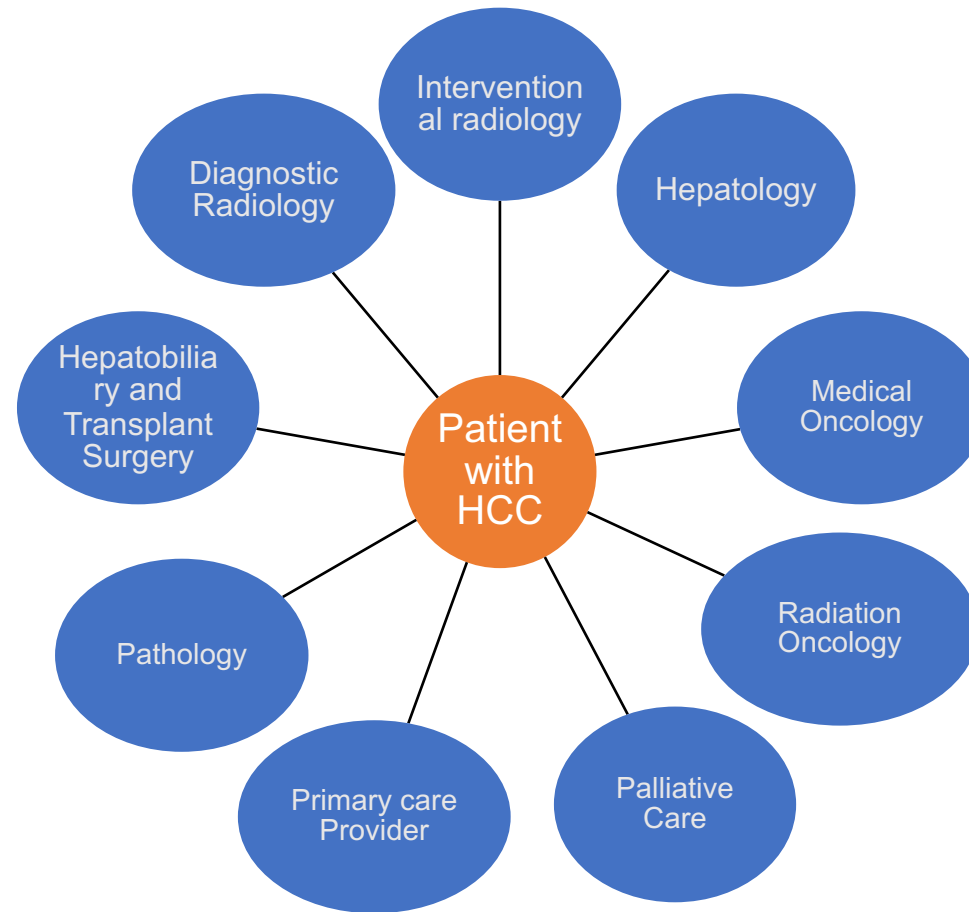


- **BCLC**, Barcelona Clinic Liver Cancer staging
- **bm-JIS**, biomarker combined JIS
- **CLIP**, Cancer of the Liver Italian Program
- ECOG, Eastern Cooperative
- **Okuda**
- Oncology Group
- **HKLC**, Hong Kong Liver Cancer staging
- **JIS**, Japanese Integrated Staging
- MELD, Model for End-Stage Liver Disease
- **TNM**, Tumor-Node-Metastasis staging

# 2018 Modified BCLC Staging System/Treatment Strategy

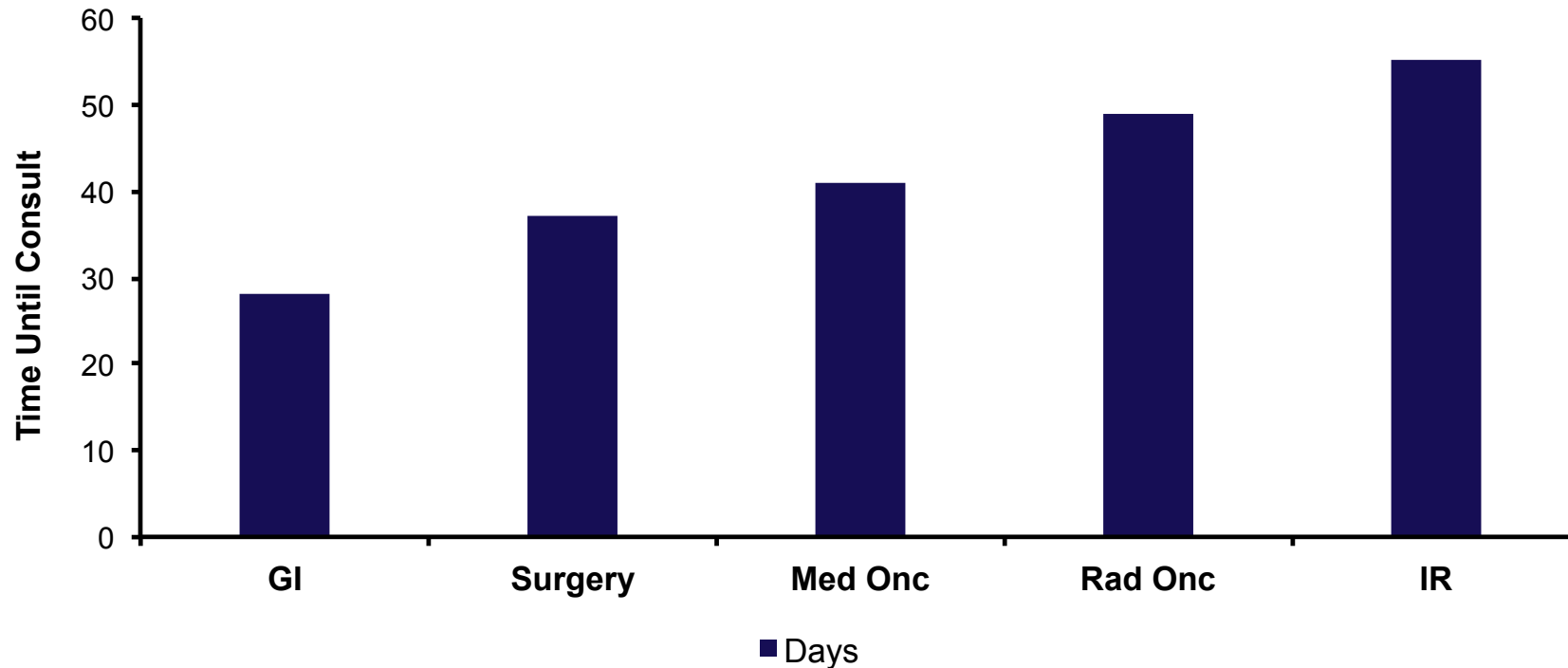


# Treatment of HCC Requires Input from Many Specialties

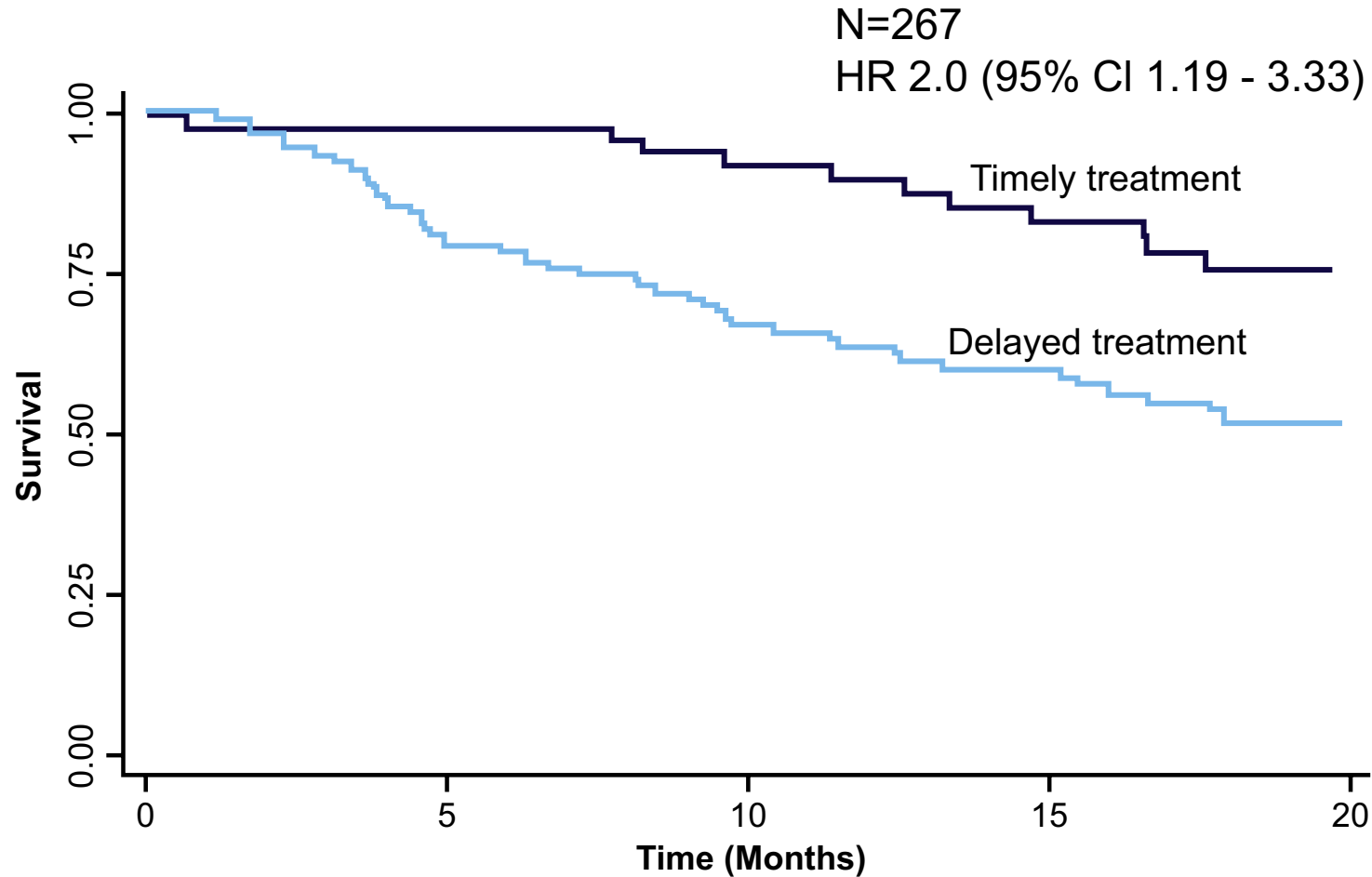


# Patients See Multiple Specialists, and Time to Treatment Can Be Delayed

- 6,752 patients with HCC reviewed in SEER database 1998-2007
- 22% saw 1 specialist, 32% saw 2 specialists, 39% saw 3 or more specialists




# Therapeutic Delays Associated with Worse Survival



Median time to treat 1.7 months, with 31% having delays > 3 mo




# Our Texas Liver Tumor Center = Multidisciplinary Care in 1 day

**University  
Health System**


[About Us](#) | [Contact](#) | [Careers](#) | [Non-Discrimination Notice](#) | [Select Language](#)

**MAIN LINE**  
210-358-4000

**CHILDREN'S HEALTH**  
210-358-5437

Search... 

[Find a Doctor](#) | [For Patients & Visitors](#) | [Services & Treatments](#) | [Health Tools](#) | [Locations & Directions](#) | [For Healthcare Professionals](#) | [Support Our Mission](#)



[Services & Conditions](#)

## The Texas Liver Tumor Center

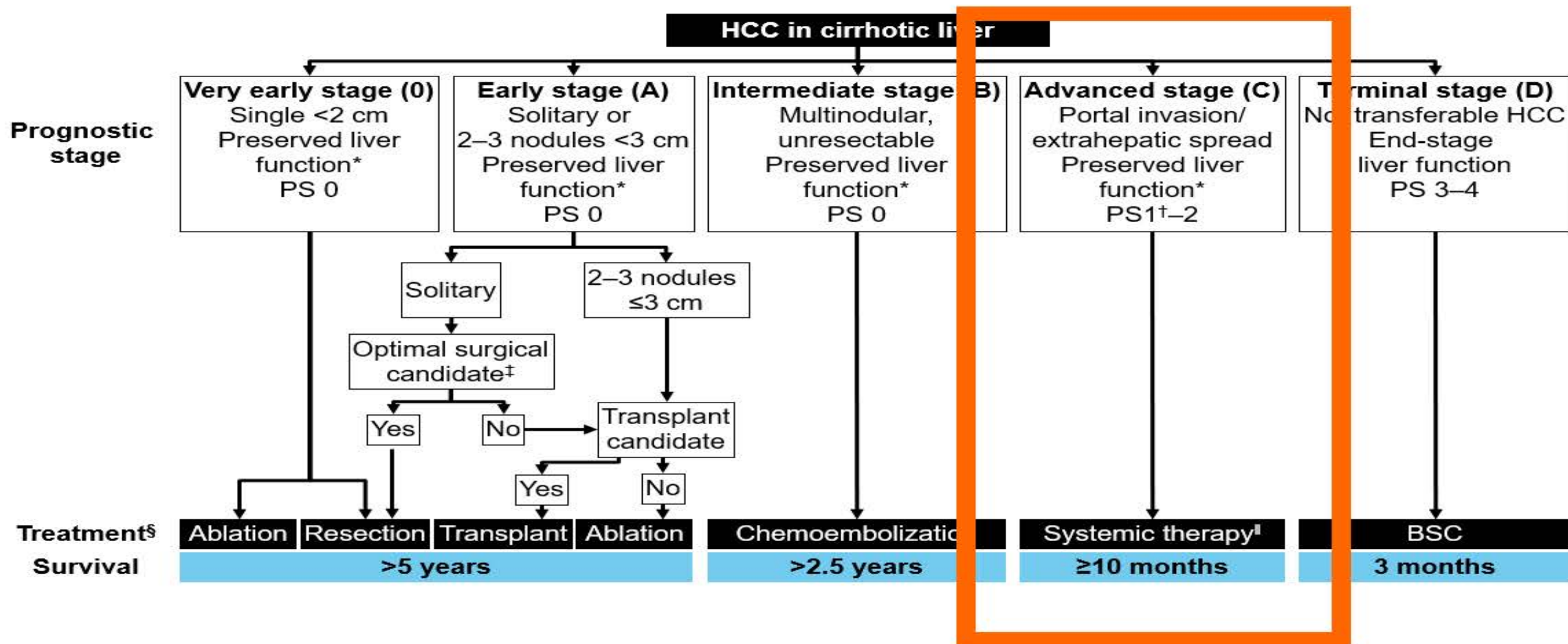
[Share](#) 4



# Outline

- **Why Focus on Hepatocellular Carcinoma (HCC)?**
- **How to Screen & Diagnose HCC**
- **How to Manage HCC**
- **New Oral HCC Therapies**

# 2018 Modified BCLC Staging System/Treatment Strategy



**TARGET POPULATION for ORAL TX**

# Landscape of Systemic Treatment 2019

Agent	Class	Line of Treatment	Status	Result
<b>Sorafenib</b>	TKI	First line	SOC	Median OS 10.7 mos
<b>Lenvatinib</b>	TKI	First line	FDA Approved 2018	Median OS 13.6 mos
<b>Nivolumab</b>	Anti-PD-1	Second line	FDA Approved 2017	Median OS 13.2 mos phase 2
<b>Regorafenib</b>	TKI	Second line	FDA Approved 2017	Median OS 10.6 mos
<b>Cabozantinib</b>	Anti-MET	Second line	FDA Approved 2019	Median OS 10.2 mos
<b>Pembrolizumab</b>	Anti-PD-1	Second line	FDA Approved 2018	New data 2/2019 –No improvement OS
<b>JK-594</b>	Oncolytic virus	First line in combination with SOR	Phase III	Q3 2018
<b>Ramucirumab</b>	Anti-VEGFR2	Second line	Phase III	Q2-3 2018

# Conclusion

- South Texas has the highest incidence of HCC in the USA
- Please screen for HCC every 6 months in patients with cirrhosis
- HCC treatment is complicated and HCC prognosis is poor overall. Please refer early and remember us at the Texas Liver Institute/Texas Liver Tumor Center

# Thank You

loo@txliver.com



# Q&A/Panel Discussion

Drs. Alkhouri, Guerrero & Loo

# Retrieve Lunch

Non-accredited Product Theater starts at  
12:00 PM

