Coalition Against Hepatitis for People of African Origin (CHIPO): Effectively Addressing High Rates of Liver Cancer in African Communities

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Agenda

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- Epidemiology
- Incidence
- Guidelines
- Risk Factors
- Challenges
- Treatment
- Unmet Needs
- Future Directions

Hepatocellular Carcinoma (HCC)

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- 3rd leading cause of death from cancer worldwide
- 5th most common cancer in men; 7th in women worldwide
- Incidence and death rates are rising, while many other cancer mortality rates are decreasing
- Worldwide: primarily due to hepatitis B (HBV) and hepatitis C (HCV) viruses
  - HCC in US is due to HCV and non-alcoholic steatohepatitis (NASH).
- Global HCC: ~600,000 deaths annually
- >80% of HCC cases occur in people who live in or are from sub-Saharan Africa, SE Asia, and eastern Mediterranean.
- Recent therapeutic advances and continually updated expert guidelines have improved prognosis of HCC from death sentence to a cancer that can be detected and treated at an early stage for good outcomes.

Mittal S, El-Serag HB. *J Clin Gastroenterol.* 2013;47(suppl): S2-6. Monsour HP et al. *Transl Cancer Res.* 2013;2:492-506. Venook AP et al. *Oncologist*. 2010;15(9suppl 4):5-13. Bruix J, Sherman M. *Hepatology*. 2011;53:1020-1022.

Incidence of Hepatocellular Carcinoma

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- 2nd highest in the world at 8.8% which is only surpassed in Asia
- North Africa has the highest rate primarily due to the Hepatitis C rates in Egypt
- Sub-Saharan Africa also has high rates but highest in Western Africa followed by Eastern, Middle, and then Southern

Incidence of Hepatocellular Carcinoma

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- 6 African countries are amongst the highest rates of HCC in the world
- Egypt is ranked #2 in the world with 28,000 cases a year
- Guinea (7), The Gambia (9), and Ghana (10) are also in the top 10
- Sub-Saharan Africa in 2020 had 38,000 cases of HCC
  - -HCC is the 2nd leading cause of death in males and 4th in women
  - -HCC occurs in a younger age group with a median survival of 3-4 months

AASLD Screening Guidance-2018

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TABLE 1. PATIENTS AT THE HIGHEST RISK FOR HCC

Population Group	Threshold Incidence for Efficacy of Surveillance (>0.25 LYG; % per year)	Incidence of HCC
Surveillance benefit		
Asian male hepatitis B carriers over age 40	0.2	0.4%-0.6% per year
Asian female hepatitis B carriers over age 50	0.2	0.3%-0.6% per year
Hepatitis B carrier with family history of HCC	0.2	Incidence higher than without family history
African and/or North American blacks with hepatitis B	0.2	HCC occurs at a younger age
Hepatitis B carriers with cirrhosis	0.2-1.5	3%-8% per year
Hepatitis C cirrhosis	1.5	3%-5% per year
Stage 4 PBC	1.5	3%-5% per year
Genetic hemochromatosis and cirrhosis	1.5	Unknown, but probably >1.5% per year
Alpha-1 antitrypsin deficiency and cirrhosis	1.5	Unknown, but probably >1.5% per year
Other cirrhosis	1.5	Unknown
Surveillance benefit uncertain		
Hepatitis B carriers younger than 40 (males) or 50 (females)	0.2	<0.2% per year
Hepatitis C and stage 3 fibrosis	1.5	<1.5% per year
NAFLD without cirrhosis	1.5	<1.5% per year

Abbreviation: LYG, life-years gained.

Marrero et al Hepatology 2018

Major Guidelines Recognize Importance of Routine Surveillance in High-Risk Populations

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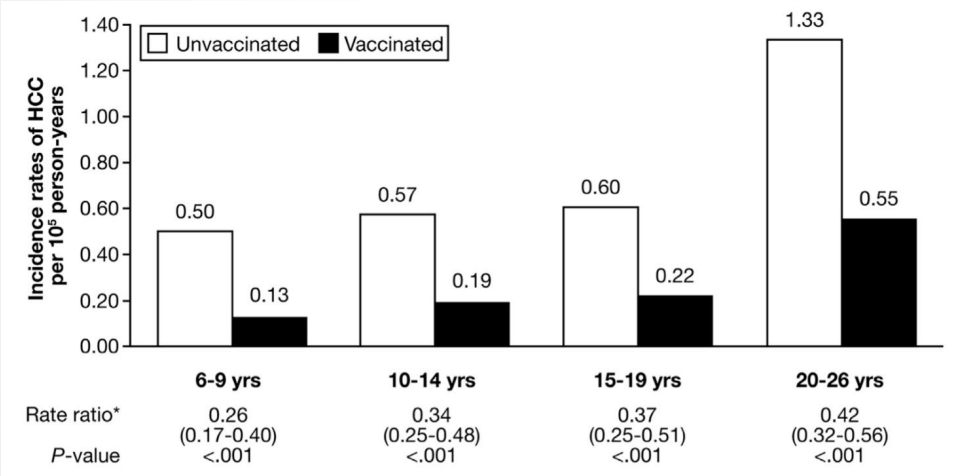
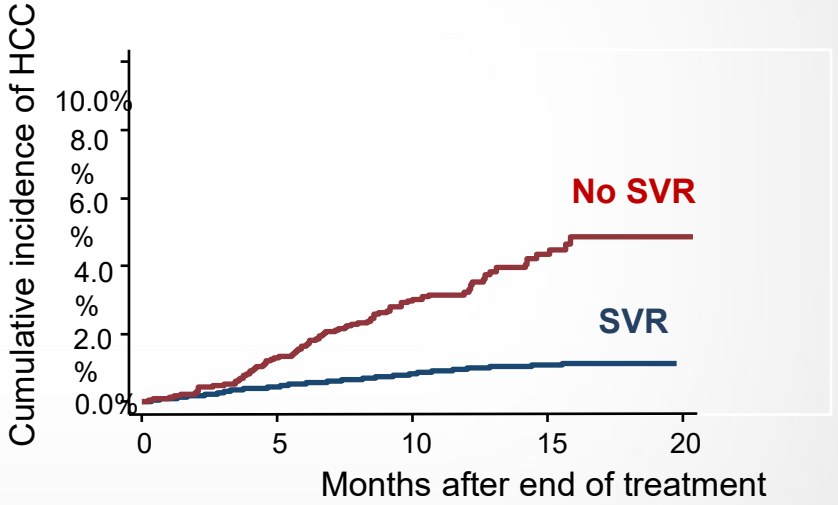
Society/Institution	Guidelines
AASLD[1] American Association for the Study of Liver Diseases	US +/- AFP every 6 months
EASL[2] European Association for the Study of the Liver	US every 6 months
APASL[3] Asian-Pacific Association for the Study of the Liver	AFP + US every 6 months
NCCN[4] National Comprehensive Cancer Network	AFP + US every 6–12 months
VA[5] United States Department of Veterans Affairs	AFP + US every 6–12 months
JSH-HCC[6] Japan Society of Hepatology	*High-Risk:* US every 6 months + AFP/DCP/AFP-L3 every 6 months *Extremely High-Risk: US every* 3–4 *months* + AFP/DCP/AFP-L3 every 3–4 months + CT/MRI (optional) every 6–12 months

US = ultrasound; AFP = alpha-fetoprotein; AFP-L3 = *Lens culinaris* agglutinin-reactive fraction of AFP; CT = computerized tomography; DCP = des-γ-carboxyprothrombin; MRI = magnetic resonance imaging.

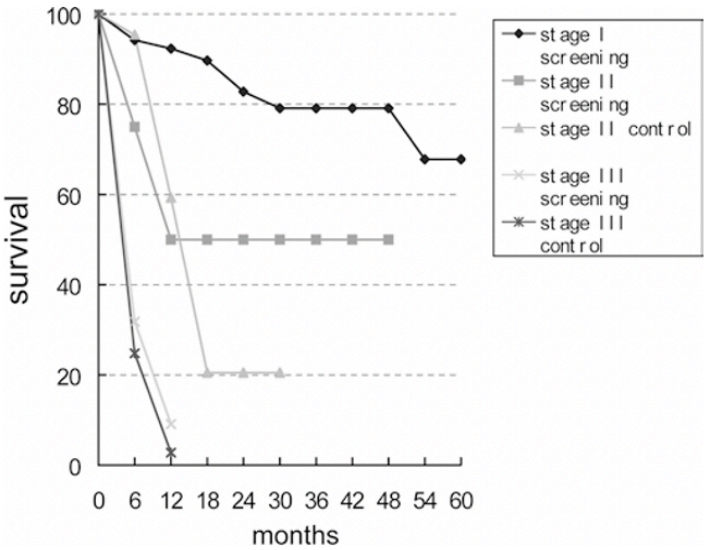
1. Bruix J, Sherman M. *Hepatology*. 2011;53:1020-1022. 2. EASL/EORTC. *J Hepatol*. 2012;56:908-943. 3. Omata M et al. *Hepatol Int*. 2010;4:439-474. 4. NCCN Clinical Practice Guidelines in Oncology (NCCN Guidelines®) for Hepatobiliary Cancers v1.2016. Accessed September, 2016; 5. US Dept of Veterans Affairs. Available at www.hepatitis.va.gov/pdf/2009HCC-guidelines.pdf. Accessed September , 2016. 6. Kokudo N et al. *Hepatol Res*. 2015;45.

HBV vaccination and antiviral treatment are effective primary prevention strategies for HCC





HCC surveillance reduces mortality in patients with chronic hepatitis B



Variable	Screen Group (n=9373)	Control Group (n=9443)
HCC cases	86	67
% Stage I	60.5%	0%
% Curative treatment	46.5%	7.5%
# HCC death	32	54
Mortality (per 100,000)	83.2	131.5
Rate Ratio	0.63 (0.4-0.9)	

Zhang et al. J Cancer Res Oncol 2004

Risk Factors for HCC in Sub-Saharan Africa

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- 272 studies revealed HBV in 66%, HCV in 27%, and 15% had HBV/HDV
- Aflatoxin B1 and dietary iron overload (beer) are environmental factors
- Other Risk Factors
  - -Alcohol
  - -Fatty liver is increasing
  - -HIV increases the risk
  - -Tobacco

Urgent Challenges in HCC

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- Eliminate Viral Hepatitis by 2030 as per WHO
- Raise awareness
- Improve Infection Control in blood banks and dialysis centers
- Screening for Hepatitis B and C as well as HCC
- Treatment of Hepatitis B and C as well as HCC

Urgent Challenges in HCC

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- Shift the task to nurses and non-specialists
- Find hard-to-reach populations
- Work with Primary Care
- Only Egypt and Rwanda are on track to eliminate Viral Hepatitis by 2020

Treatment of Hepatocellular Carcinoma and Unmet Needs

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- Lack of Guidelines in Africa
- Most patients outside of Egypt are in Sub-Saharan Africa
- 95% present with advanced/terminal disease
- A very small percentage of patients are treated with an intent to cure

Treatment of Hepatocellular Carcinoma

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- Ablation has a 60% survival at 5 years with a recurrence rate of 3-22%
- Resection has a 50-70% survival at 5 years with a recurrence rate over 60%
- Liver Transplant has a 70% survival at 5 years with a recurrence rate of 6-15%
- TACE/TARE have 30-40% survival at 5 years with a recurrence rate over 50%

Treatment of Hepatocellular Carcinoma

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- Liver transplant is available in only 28% of North and South Africa with 3% in East and West Africa
- Central Africa has a very low rate of Resection
- Local treatment is available in 94% of North and South (72% have TACE) Africa but only 62% in Central Africa
- 16% have no access to treatment

Treatment of Hepatocellular Carcinoma

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- Egypt established a live donor liver transplant program and now has 34 centers
- South Africa has 2 transplant centers
- Cote d'Ivoire has a live donor program with Egypt's help
- Sudan recently started a live donor liver transplant program as well

Systemic Treatment of HCC

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- First line therapy is Atezolizumab and Bevacizumab and second line is Sorafenib
- However, the majority of patient are given Sorafenib (66%)
- Only 11% have access to check point inhibitors
- Only 42% have access to second line therapy
- Major gaps exist in access and availability of treatment in many parts of Africa, especially Central/Eastern/Western Africa
- 3% are treated in Africa vs 76% in Egypt with only a survival of 2.5 months vs 10.9 months

Future Directions in HCC

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- Strengthen national data systems and cancer registries
- Screen with biomarkers
- Eliminate Viral Hepatitis by 2030
- Improve Hepatitis B vaccination at birth
- Develop Centers of Excellence for treatment
- Develop Knowledge-sharing Virtual programs like Project ECHO

How to Improve the Hepatic Health of the World

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- Find and treat all HBV/HCV patients
- Find and treat all NAFLD patients
- Find and screen all cirrhotics and HBSAg + patients for Hepatoma
- Identify Hepatomas at an earlier stage with better screening modalities
- Eliminate the organ shortage
- Accurate assessment of surgical risk with VOCAL-PENN calculation


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