

BACKGROUND

- Hepatocellular Carcinoma (HCC) is the most prevalent liver cancer in adults, and its cancer-specific mortality is on the rise in the United States (US) [1]
- Recent studies have shown that less than 30% of people diagnosed with HCC in the US are treated [2]

OBJECTIVES

This study examined the incidence and survival rates for HCC in recent years

METHODS

Data Source:

- Surveillance, Epidemiology and End Results (SEER) registries, 2008-2018

Study Population:

- SEER site codes ICD-O3: C22.0 and Histology codes: 8170-8175
- Patients aged 20 years or older
- Population was stratified by age, gender, and race (Non-Hispanic White, Non-Hispanic Black, Non-Hispanic American Indian/Alaska Native, Non-Hispanic Asian or Pacific Islander, Hispanic [all races])

Outcomes:

- Annual, age-adjusted incidence rates of HCC per 100,000 individuals
- Annual Percent Change (APC) of HCC cancer incidence was calculated using weighted least square method
- Cancer-specific 5-year survival rates (5-YSR) were examined using the Kaplan Meier method

RESULTS

Table 1: Cohort Characteristics of HCC Patients in US, 2008-2018

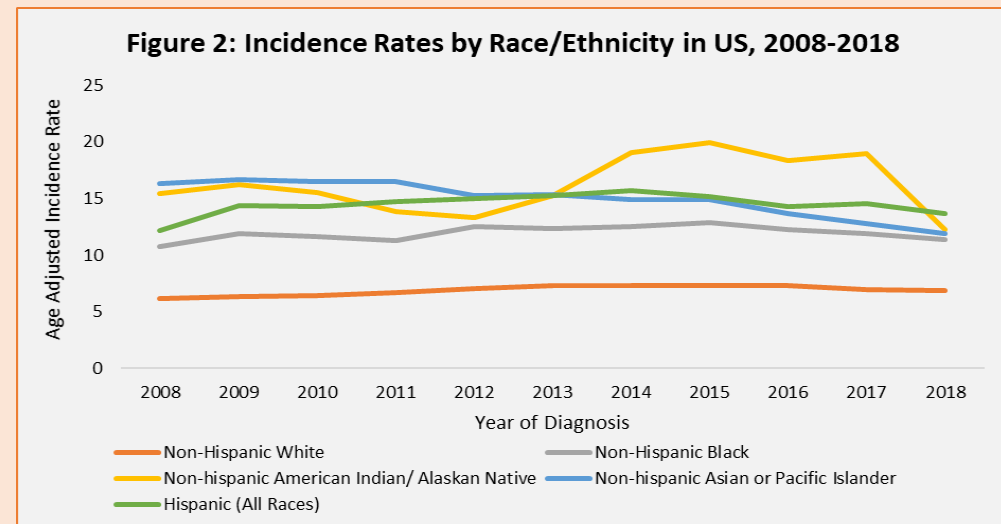
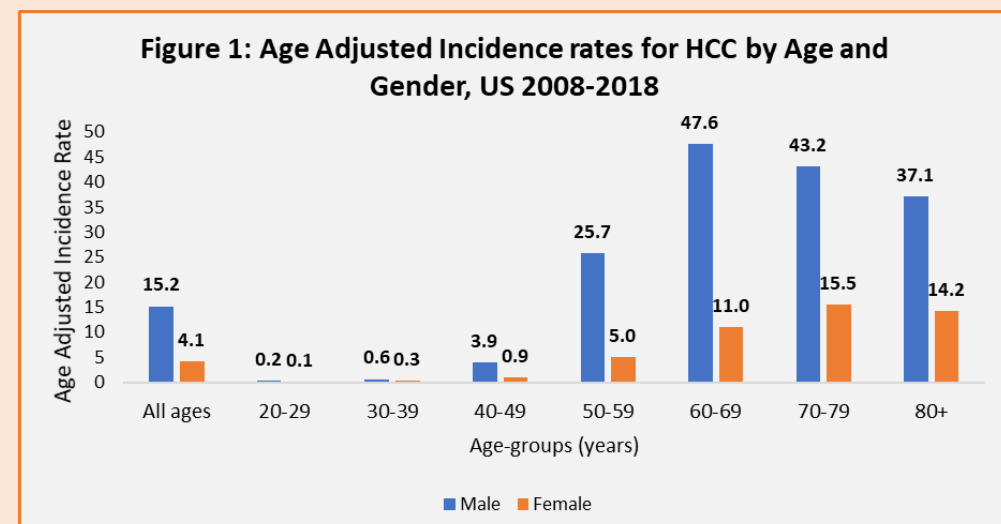
Variable	N	%
Age Groups (in years)		
20-29	253	0.35
30-39	564	0.77
40-49	3,257	4.45
50-59	20,125	27.51
60-69	26,820	36.66
70-79	14,591	19.94
80+	7,558	10.33
Gender		
Male	56,128	76.71
Female	17,040	23.29
Stages		
Localized	36,428	49.79
Regional	19,194	26.23
Distant	10,273	14.04
Unknown	7,273	9.94
Race/Ethnicity		
Non-Hispanic White	36,618	50.05
Non-Hispanic Black	10,005	13.67
Non-Hispanic American Indian/ Alaskan Native	917	1.25
Non-Hispanic Asian or Pacific Islander	10,793	14.75
Hispanic (All Races)	14,630	20.00
Non-Hispanic Unknown Race	205	0.28

- A total of 73,168 HCC patients were identified between 2008-2018 using SEER
- Most of these patients were male (77%), aged between 60-69 years (37%), non-Hispanic whites (50%), and with localized tumor stage (50%)

RESULTS

Incidence Trends:

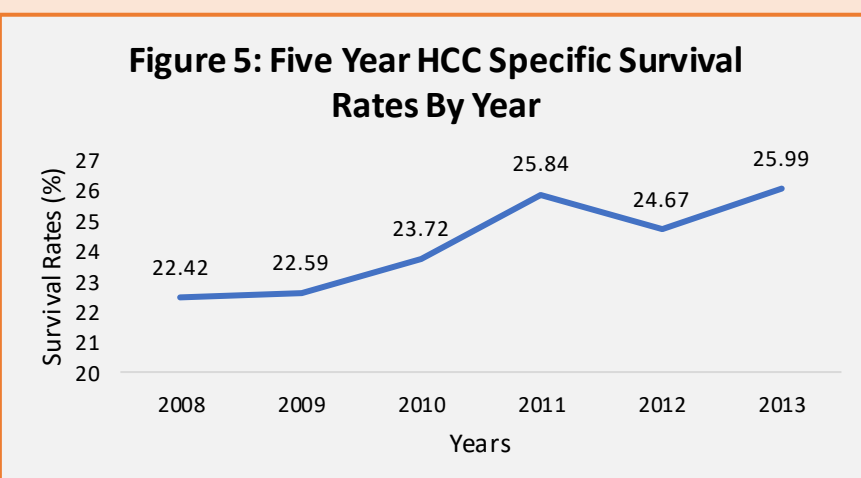
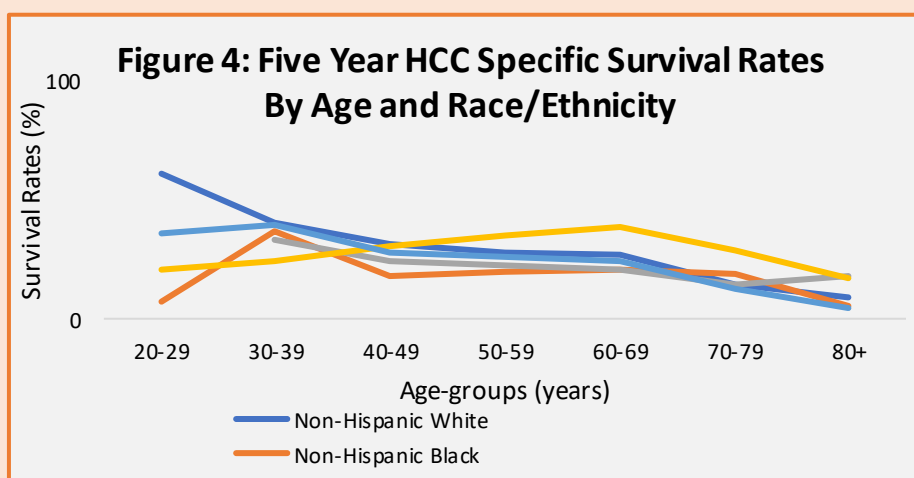
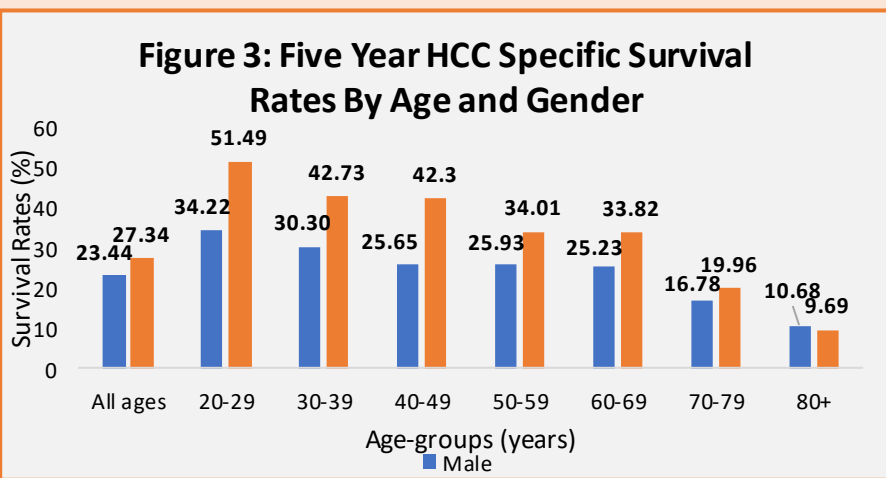
- The overall incidence among men (15.2 per 100,000 PY, SE=0.07) were at least three times as high as the incidence among women (4.1 per 100,000 PY, SE=0.03). Specifically, Male patients aged 60 years and older (47.6 per 100,000 PY; SE=0.33) had a higher incidence than younger patients
- Incidence rates were higher among non-Hispanic American Indian/Alaskan Natives than among other races/ethnicities, with a peak in 2015 (20.0 per 100,000 PY; SE=1.98)
- The APC estimated using Joinpoint Regression was 2.83 (95% CI [2.2, 3.5]) indicating a statistically increasing trend from 2008-2014 and -2.52 (95% CI [-3.6, -1.4] indicating a statistically decreasing trend from 2014-2018
- The reduction in APC trends were only significant among males in recent years (-3.94; 95% CI [-6.3, -1.5]). Non-Hispanic Asian or Pacific Islander (-7.0; 95% CI [-10.7, -3.2]) and blacks (-3.9; 95% CI [-6.3, -1.5]) have a larger negative APC from 2015 to 2018.



Rates are as per 100,000 and age standardized to the 2000 US Population

Survival Trends:

- The overall 5-year HCC specific survival rates were lower in men (23.5%; SE=0.30) as compared to women (27.3%; SE=0.58)
- Patients in the age-group 20-29 years had the highest survival rates (Male: 34.22%; SE=5.49; Female: 51.49%; SE=8.51) and the rates gradually decreased for older patients
- Compared to other races/ethnicities, Non-Hispanic Asian or Pacific Islander patients had the highest survival rate after the age of 40 years
- The overall 5-year HCC specific survival rates have increased from 22.4% (SE=0.68) in 2008 to 26% (SE=0.63) in 2013



Here, the 5-year HCC specific survival rates are calculated from the years 2008 to 2013 as the data after 2018 was not available

LIMITATIONS

Our study had the drawback of being based on cancer registry data with no information on individual risk variables. As a result, we can't say if specific exposures or interventions played a role in the time and cohort impacts, we saw in HCC incidence patterns

CONCLUSIONS

- The HCC incidence and survival rates vary by gender and race/ethnicity
- Despite the recent decrease in HCC incidence rates, the overall rates remain high, with a significant need to reduce the disease burden

Table 2: APC and AAPC in HCC incidence rates by demographic characteristics in US, 2008-2018

Characteristics	Joint Point Segment Year Start	Joint Point Segment Year End	APC	Lower CI	Upper CI	P-value	AAPC	Lower CI	Upper CI	P-value
Overall	2008	2014	2.83	2.2	3.5	<0.001	0.7	0.2	1.1	<0.001
	2014	2018	-	-3.6	-1.4	0.0002				
Sex										
Male	2008	2014	2.12	1.4	2.8	<0.001	0.3	-0.5	1	<0.001
	2014	2018	-	-6.3	-1.5	0.008				
Female	2008	2014	3.6	1.9	5.3	0.002	1.3	0.4	2.2	<0.001
	2014	2018	-	-2.5	0.5	0.156				
Race and origin										
Non-Hispanic White	2008	2014	3.3	2.3	4.3	<0.001	1.2	0.4	1.9	<0.001
	2014	2018	-1.9	-3.6	-0.2	0.034				
Non-Hispanic Black	2008	2015	2.0	0.5	3.5	0.019	0.2	-1.4	1.8	1
	2015	2018	-3.9	-9.2	1.7	0.134				
Non-Hispanic American Indian/Alaska Native	2008	2018	1.4	-2.3	5.1	0.425	1.4	-2.3	5.1	0.425
Non-Hispanic Asian or Pacific Islander	2008	2015	-1.9	-3	-0.7	0.008	-3.4	-4.6	-2.3	<0.001
	2015	2018	-7	-10.7	-3.2	0.005				
Hispanic (All Races)	2008	2014	3.1	0.6	5.5	0.021	0.4	-1.3	2.2	1
	2014	2018	-3.4	-7.4	0.6	0.084				
Age in years										
20-29 years	2008	2018	-1	-3.6	1.6	0.393	-1	-3.6	1.6	0.393
30-39 years	2008	2018	-2.4	-5.6	1	0.145	-2.4	-5.6	1	0.145
40-49 years	2008	2018	1.1	-7.7	-5.2	<0.001	-6.4	-7.7	-5.2	<0.001
50-59 years	2008	2013	1.1	-0.4	2.6	0.133	-3.7	-4.6	-2.9	<0.1
	2013	2018	-8.3	-9.8	-6.8	<0.001				
60-69 years	2008	2015	8.3	6.7	9.9	<0.001	4.7	3.3	6.2	<0.001
	2015	2018	-3.1	-7.5	1.6	0.159				
70-79 years	2008	2018	1.4	0.8	2.1	0.001	1.4	0.8	2.1	<0.001
80+ years	2008	2018	1.5	1	1.9	<0.001	1.5	1	1.9	<0.001

Note: APC: Annual Percent Change; CI: Confidence Interval; AAPC: Average Annual Percent Change; All the values in **BOLD** represents statistically significant values

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For any questions please email: arunima.hait@cheors.com

Contact us:

