



Health
Sydney
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Hepatocellular Carcinoma (HCC) in NSW and Australia

Dr Joseph Lawler

Gastroenterologist and Hepatologist

Deadly Doctors Forum

18th October 2025

Outline

- Acknowledgement of country
- Hepatocellular carcinoma
 - What is it?
 - Epidemiology in Australia
 - Diagnosis
 - Treatment
 - Case



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Hepatocellular carcinoma

- What is it?
 - HCC is a type of liver cancer that arises in hepatocytes, the main type of cell in the liver
 - It is the most common type of liver cancer, causing up to **85% of all liver cancers**
 - Other types of liver cancer in adults:
 - Intrahepatic cholangiocarcinoma (10-20% of liver cancers)
 - Angiosarcoma and haemangiosarcoma (rare)



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Hepatocellular carcinoma

- Risk factors for HCC:
 - Prospective study in Melbourne (2012 -2013) identified major risk factors associated with HCC diagnosis
 - Cirrhosis in **83%**
 - HCV in **41%**
 - Alcohol in **39%**
 - HBV in **22%**
 - Other risk factors:
 - Metabolic-associated fatty liver disease
 - Haemochromatosis

Hong et al 2016



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Hepatocellular carcinoma

- Epidemiology in Australia
 - In 2023:
 - 3,048 new liver cancer diagnoses (**M = 2,206**; F = 842)
 - 2% of all cancers diagnosed in Australia

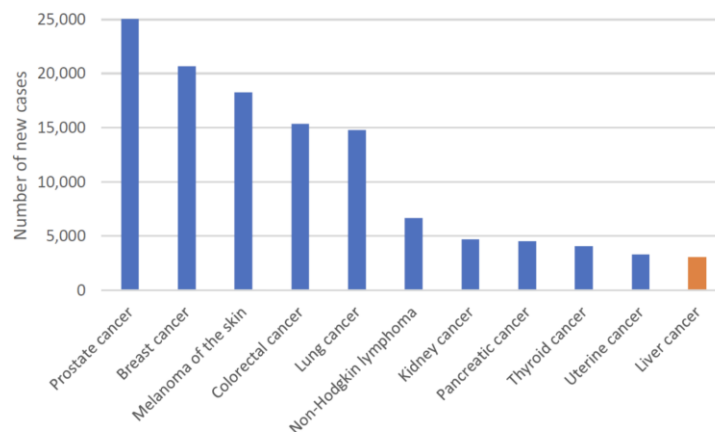


Figure 1. Estimated cancer incidence in Australia, 2023

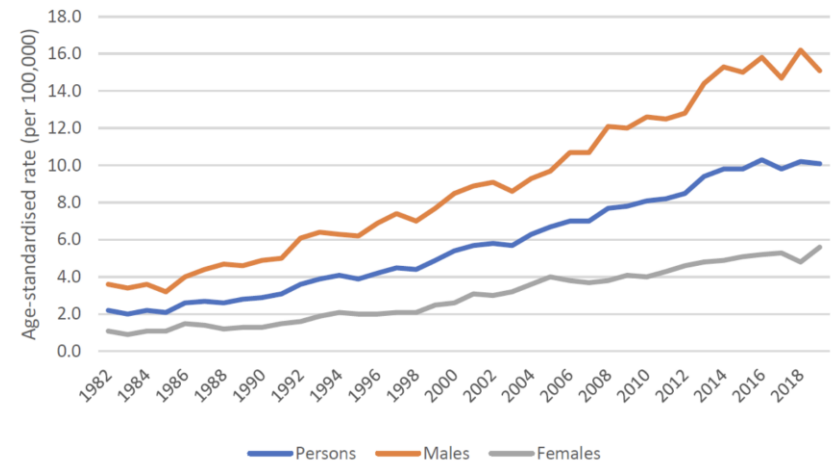
AIHW 2023



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Hepatocellular carcinoma

- Epidemiology in Australia
 - Incidence
 - Up to 2018 the incidence, or rate of diagnosis, continued to increase



AIHW 2023

Figure 2. Age-standardised incidence rates for liver cancer cancer, 1982 to 2019, by sex

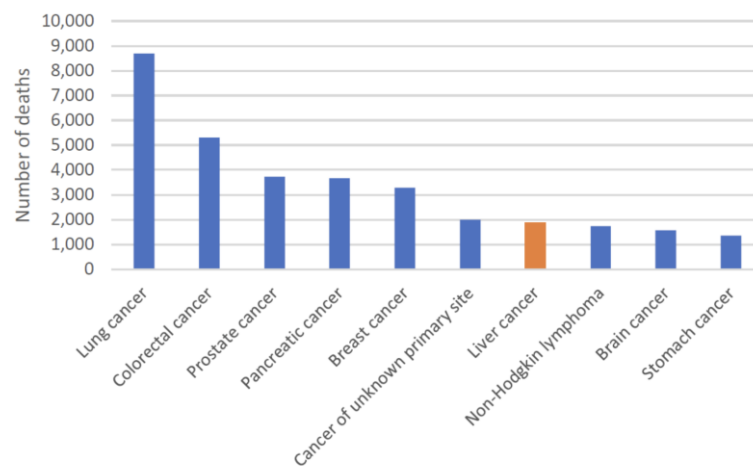


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Hepatocellular carcinoma

- Epidemiology in Australia
 - Mortality
 - In 2023:
 - Liver cancer was the 7th most common cause of cancer death
 - 2,545 died from the disease
 - 5% cancer deaths



AIHW 2023

Figure 3. Estimated cancer mortality in Australia, 2023



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Hepatocellular carcinoma

- Epidemiology in Australia

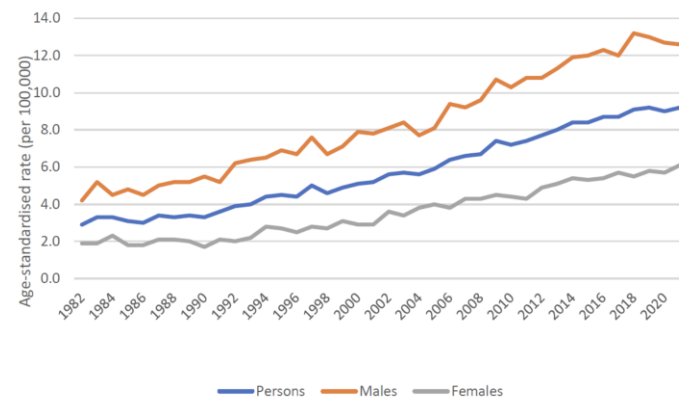


Figure 4. Age-standardised mortality rates for liver cancer cancer, 1982 to 2021, by sex

- Mortality

- Up to 2021 the mortality rates from liver cancer continued to rise
- 2015-2017 **5-year survival 23%**

AIHW 2023

- HCC was the ***fastest rising cause of cancer death*** in Australia with ***rates tripling*** between 1982 and 2007

AIHW 2012



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- In NSW
 - 15-year retrospective study (2001 – 2015) of cancer registry databases
 - Median survival to HCC- related death was 1 year
 - 5-year survival 21.4%
 - Higher mortality was seen in middle and high middle socioeconomic status groups, men, >65yo & alcohol related presentations

Maher et al 2023

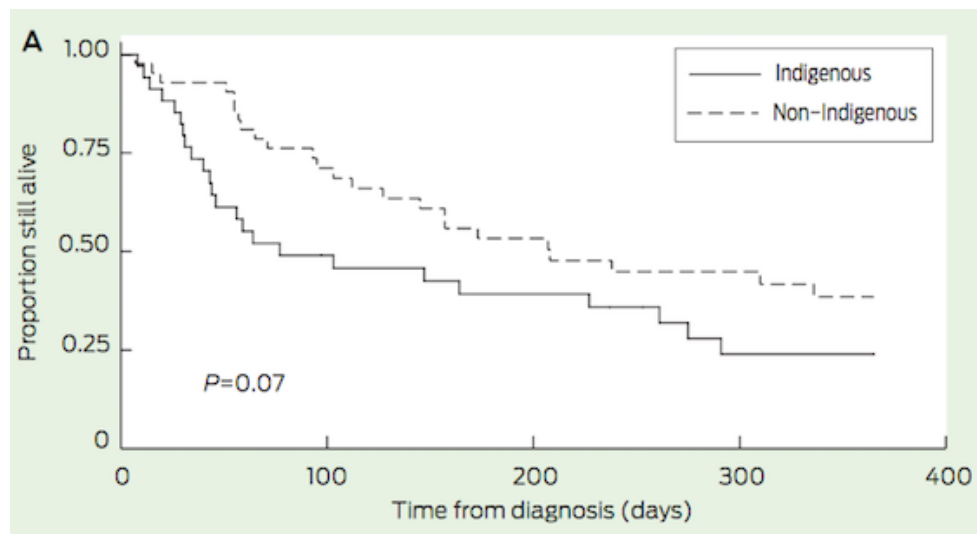


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Hepatocellular carcinoma

- In the Aboriginal and Torres Strait Islander community
 - 2000-2011 incidence HCC in the NT **6X higher** in First Nations people
 - **HBV** was the most common causative agent
 - Outcomes were poorer – ***median survival less than half that of non-indigenous***

Parker et al 2014



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Hepatocellular carcinoma

- **In the Aboriginal and Torres Strait Islander community**
 - Data linkage study Qld, SA & NT 2000-2017 identified 248 Indigenous and 4063 non-Indigenous HCC cases
 - Indigenous Australians
 - diagnosed **younger** (**59.9** vs 65.4 years)
 - Presented with **more advanced disease** (tumour size **79mm** vs 50.5mm)
 - **Alcohol-related** disease was higher (54.1% vs 39.6%)
 - **HBV-related** disease was higher (25.3% vs 9.9%)
 - HCV-related disease was less (16.6% vs 27.1%)

Wigg et al 2021



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Hepatocellular carcinoma

- In the Aboriginal and Torres Strait Islander community
 - Indigenous HCC cases were less likely to receive treatment

HCC treatment in Indigenous and non-Indigenous Australians.

	Non-Indigenous <i>N</i> = 3587	Indigenous <i>N</i> = 229	Total <i>N</i> = 3816	<i>p</i> -value
Liver resection	263 (7.3%)	8 (3.5%)	271 (7.1%)	0.028
Ablation	176 (4.9%)	5 (2.2%)	181 (4.7%)	0.060
Trans arterial chemoembolization	762 (21.2%)	24 (10.5%)	786 (20.6%)	<0.001
Transplant	139 (3.9%)	5 (2.2%)	144 (3.8%)	0.280
Any HCC treatment	1035 (28.9%)	36 (15.7%)	1071 (28.1%)	<0.001
Curative HCC therapy given*	519 (14.5%)	15 (6.6%)	534 (14.0%)	<0.001

*liver resection, ablation, or transplant.

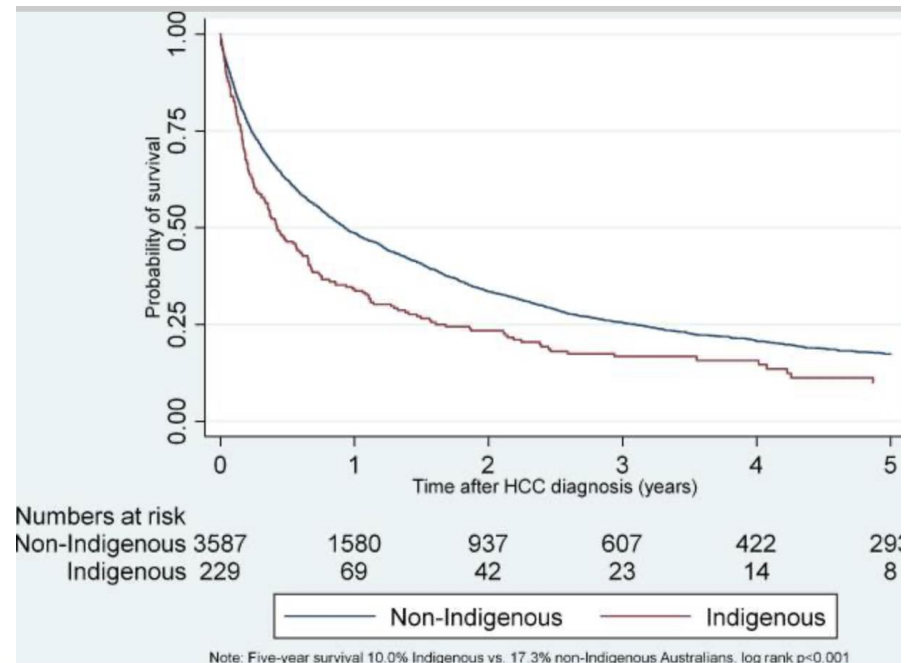
Wigg et al 2021



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Hepatocellular carcinoma

- In the Aboriginal and Torres Strait Islander community
 - Survival was poorer
 - **Median time from diagnosis to death 150** vs 290 days
 - **5-year survival 10%** vs 17.3%



Wigg et al 2021



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Outline

- Hepatocellular carcinoma
 - What is it?
 - Epidemiology in Australia
 - **Diagnosis**
 - Treatment
 - Cases



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Hepatocellular carcinoma

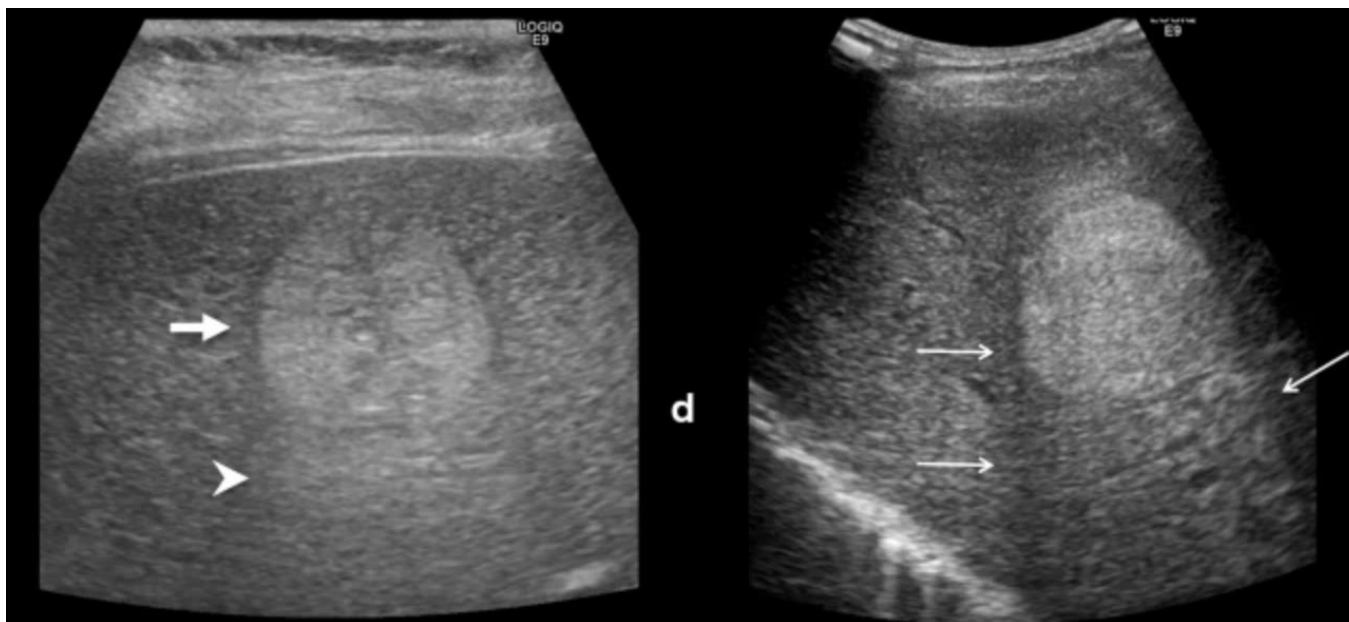
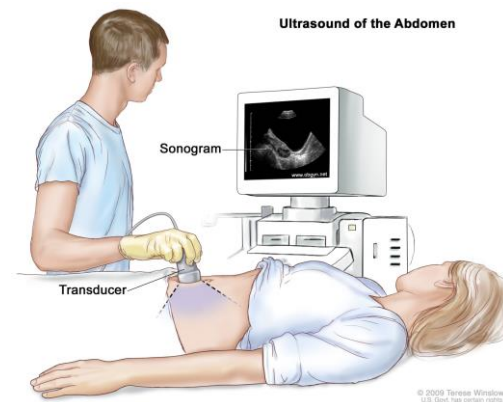
- Diagnosis
 - Assessment of those at risk
 - Imaging
 - Ultrasound
 - Multiphase CT
 - MRI
 - Blood tests
 - AFP
 - Biopsy



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Hepatocellular carcinoma

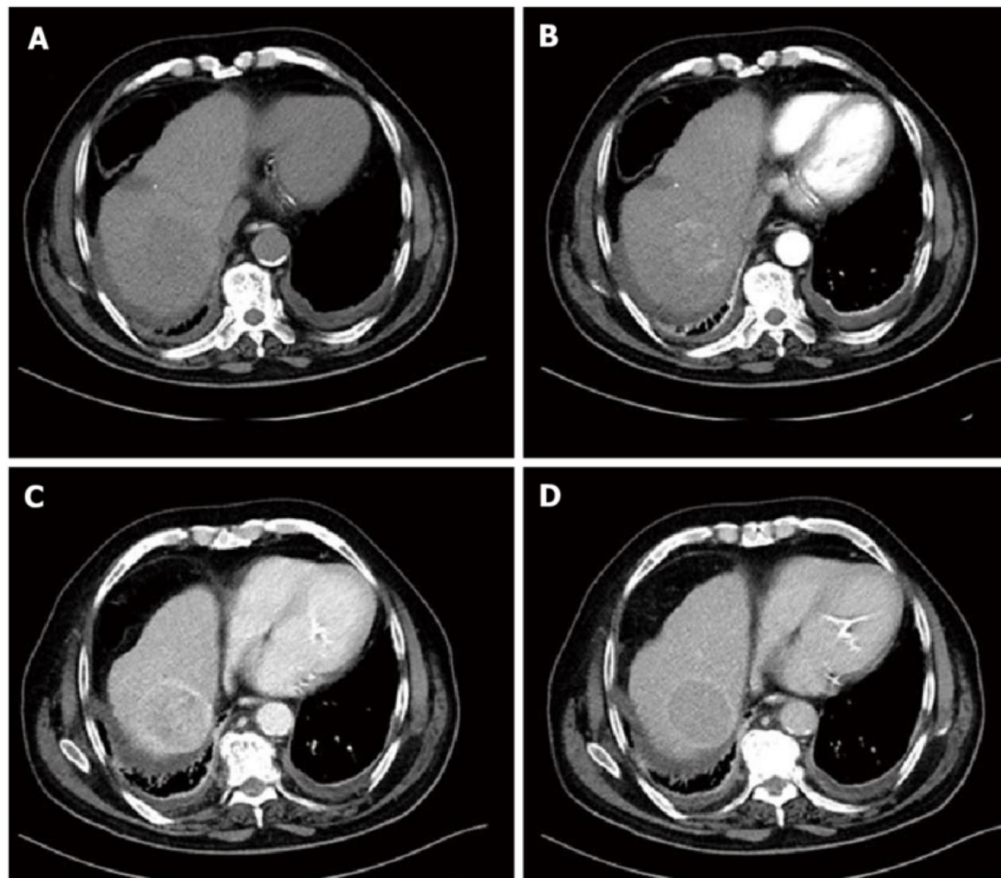
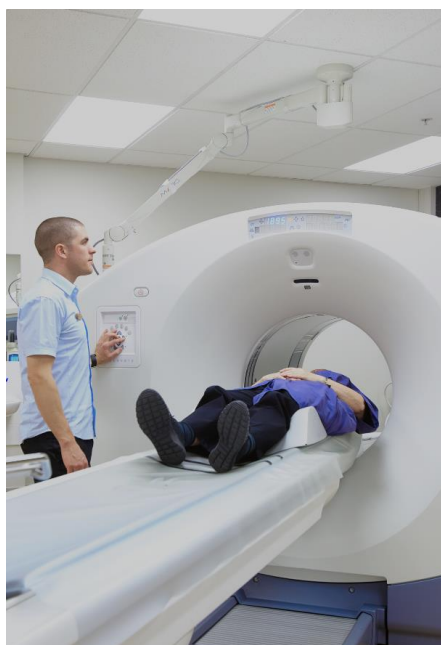
- Diagnosis
 - Ultrasound



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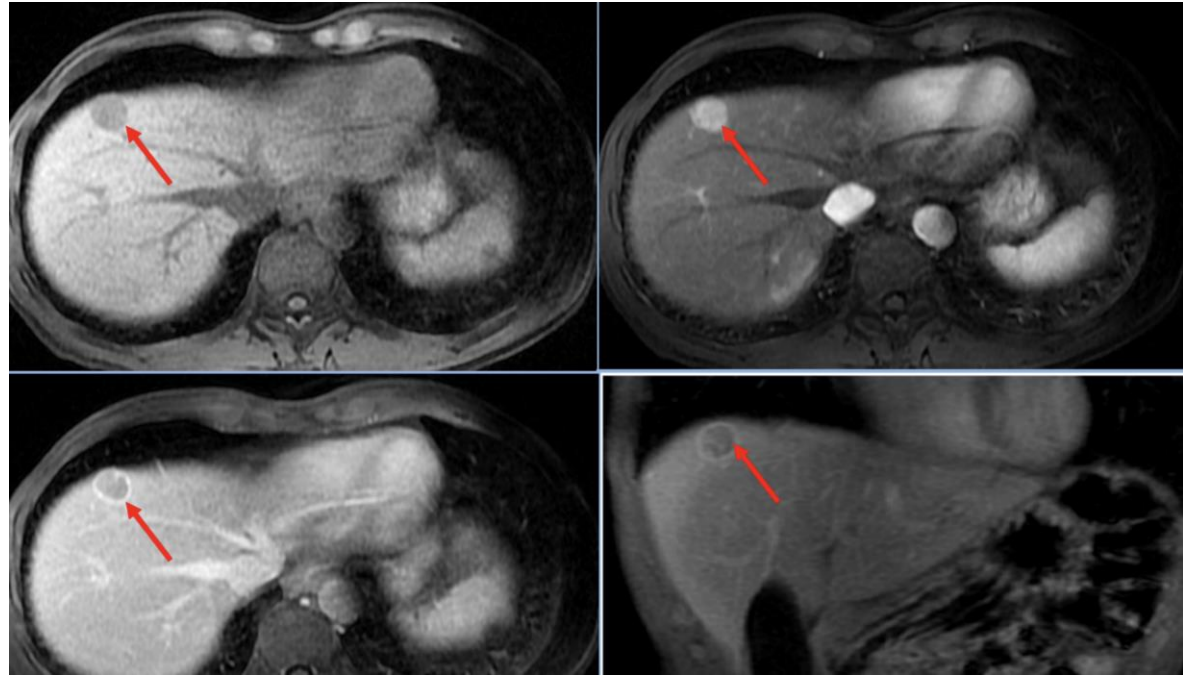
- Diagnosis
 - CT multi-phase



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Hepatocellular carcinoma

- Diagnosis
 - MRI



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Hepatocellular carcinoma

- Diagnosis

- AFP

- **Normal AFP levels in up to 30% patients at diagnosis**

Colombo 2001

- meta-analysis 1990-2016, 32 studies, >13,000 patients

- ultrasound alone for early-stage HCC detection achieves **sensitivity 53%**
 - ultrasound plus AFP for early-stage HCC detection achieves a **sensitivity of 63%**

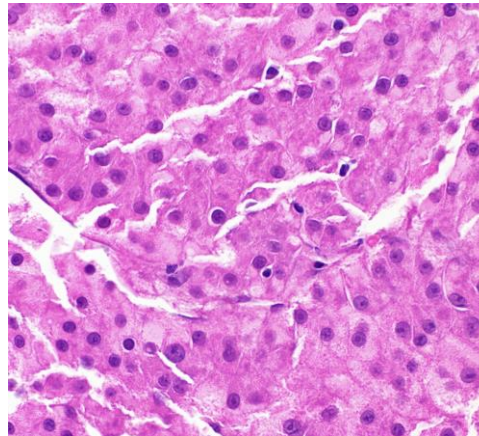
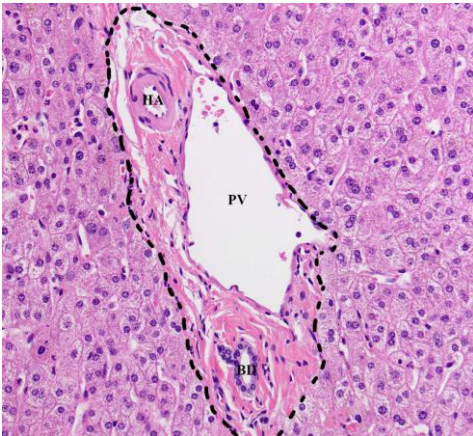
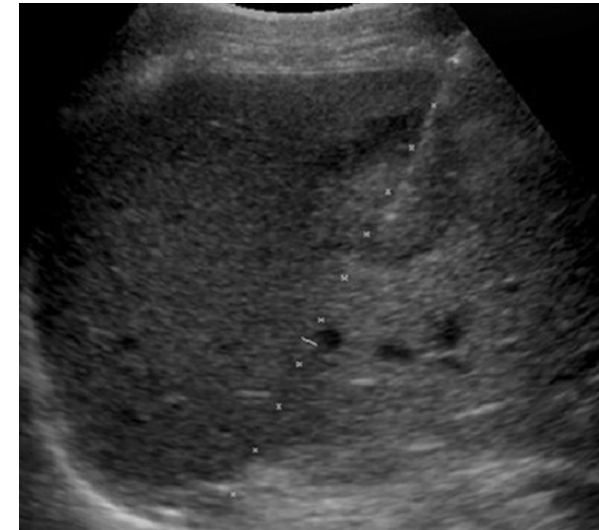
Tzartzeva et al 2018



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Hepatocellular carcinoma

- Diagnosis
 - Biopsy – imaging guided
 - Rarely needed
 - Role when imaging not definitive
 - Risks of tumour seeding, bleeding



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Outline

- Hepatocellular carcinoma
 - What is it?
 - Epidemiology in Australia
 - Diagnosis
 - **Treatment**
 - Cases



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Hepatocellular carcinoma

Consensus statement

Australian recommendations for the management of hepatocellular carcinoma: a consensus statement

John S Lubel^{1,2}, Stuart K Roberts¹ , Simone I Strasser^{3,4}, Alexander J Thompson⁵, Jennifer Philip^{6,7} , Mark Goodwin⁸, Stephen Clarke⁹, Darrell HG Crawford¹⁰, Miriam T Levy¹¹ , Nick Shackel¹²

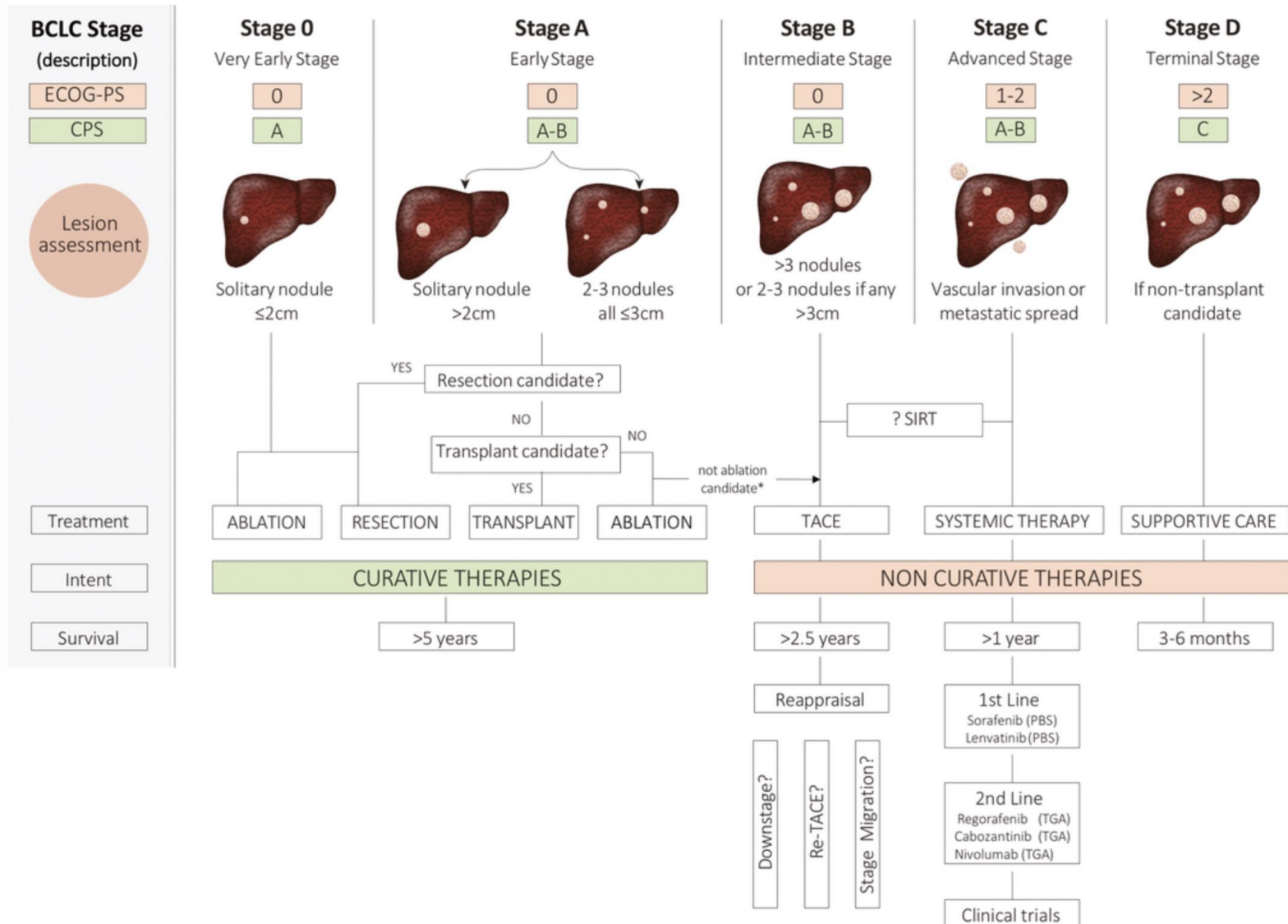
■ Treatment

- Liver Cancer MDT approach
- Surgical resection
- Ablation: RFA, MWA, PEI
- Liver transplantation
- Locoregional treatment: TACE, SIRT, SBRT
- Systemic treatment: sorafenib, lenvatinib, atezolizumab, bevacizumab
- Supportive care



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Hepatocellular carcinoma

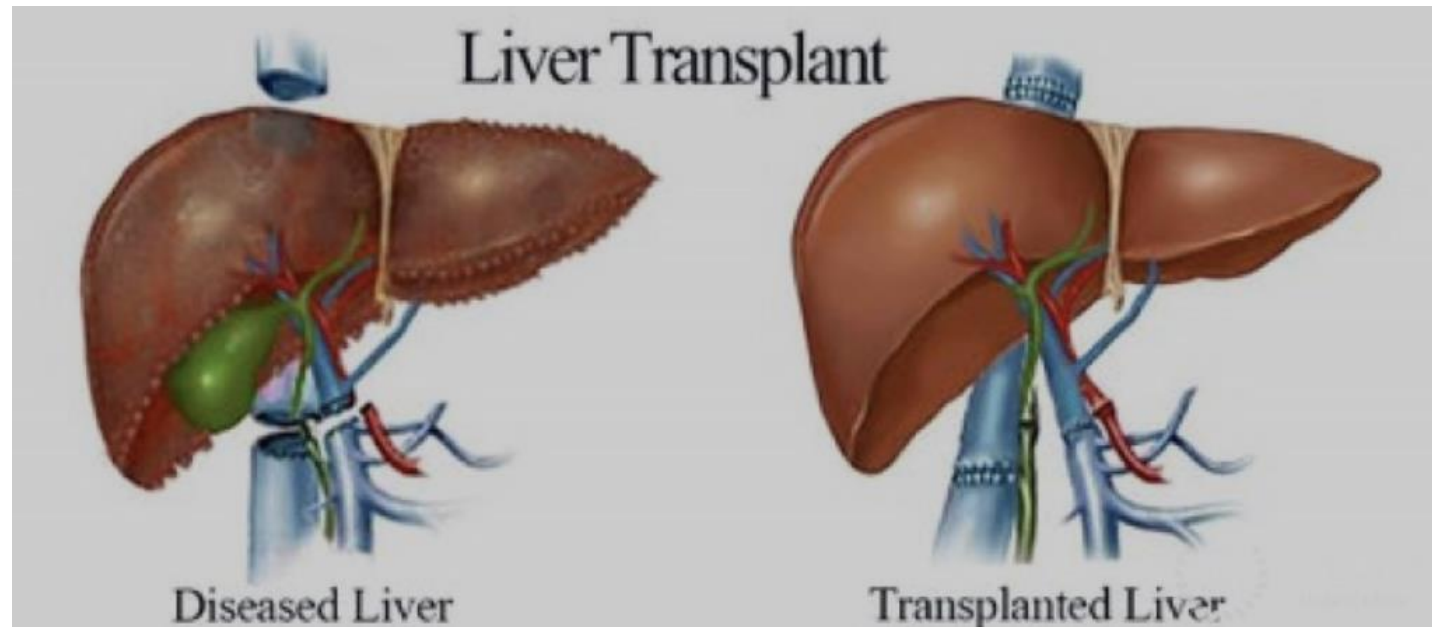
- Treatment
 - Surgical resection



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Hepatocellular carcinoma

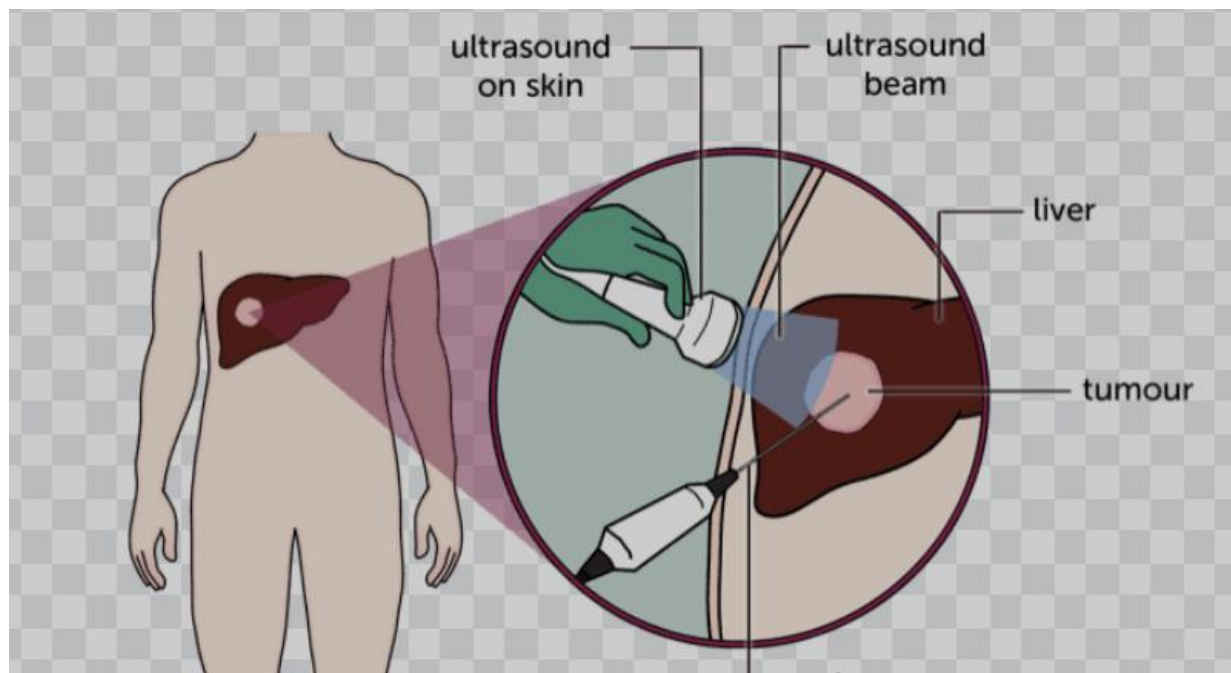
- Treatment
 - Liver transplant



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- Treatment
 - Ablation
 - RFA
 - Microwave
 - Alcohol

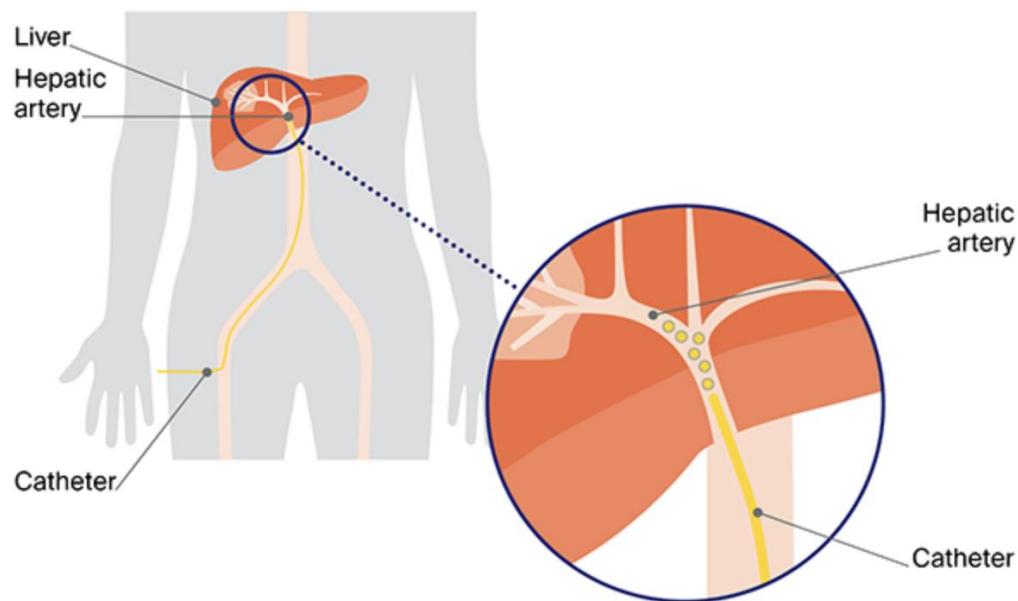


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Hepatocellular carcinoma

- Treatment
 - Locoregional treatment:
 - TACE

**Trans-
Arterial
Chemo-
Embolisation**

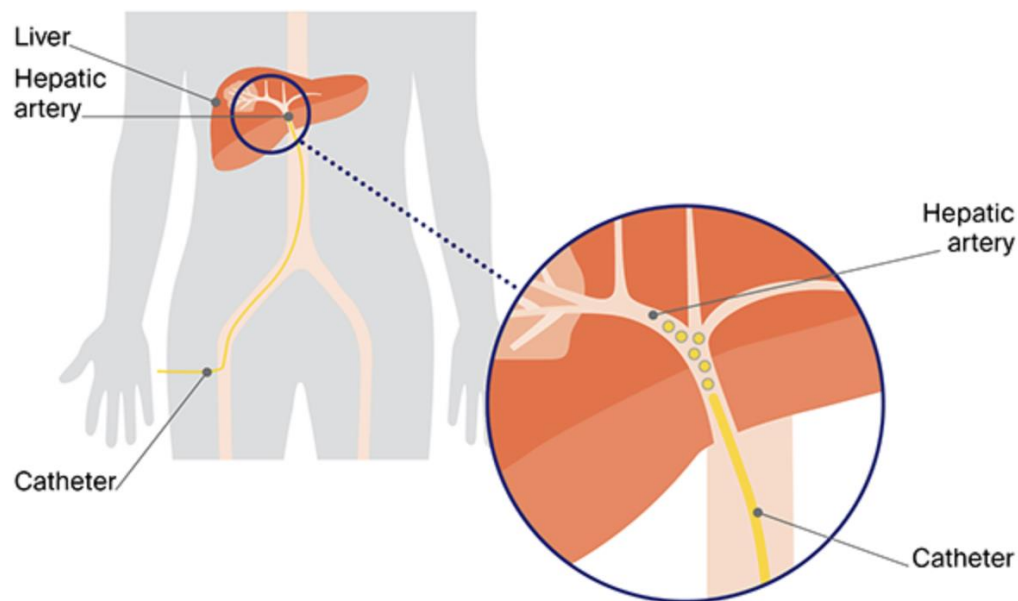


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Hepatocellular carcinoma

- Treatment
 - Locoregional treatment:
 - TACE

**Trans-
Arterial
Chemo-
Embolisation**

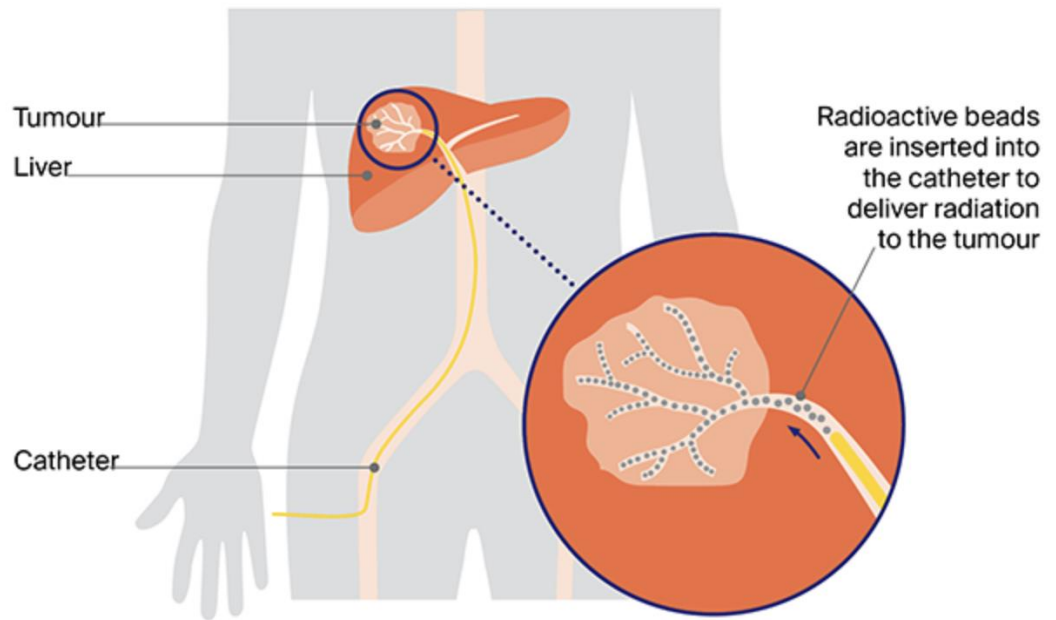


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- Treatment
 - Locoregional treatment:
 - SIRT

**Selective
Internal
Radiation
Therapy**

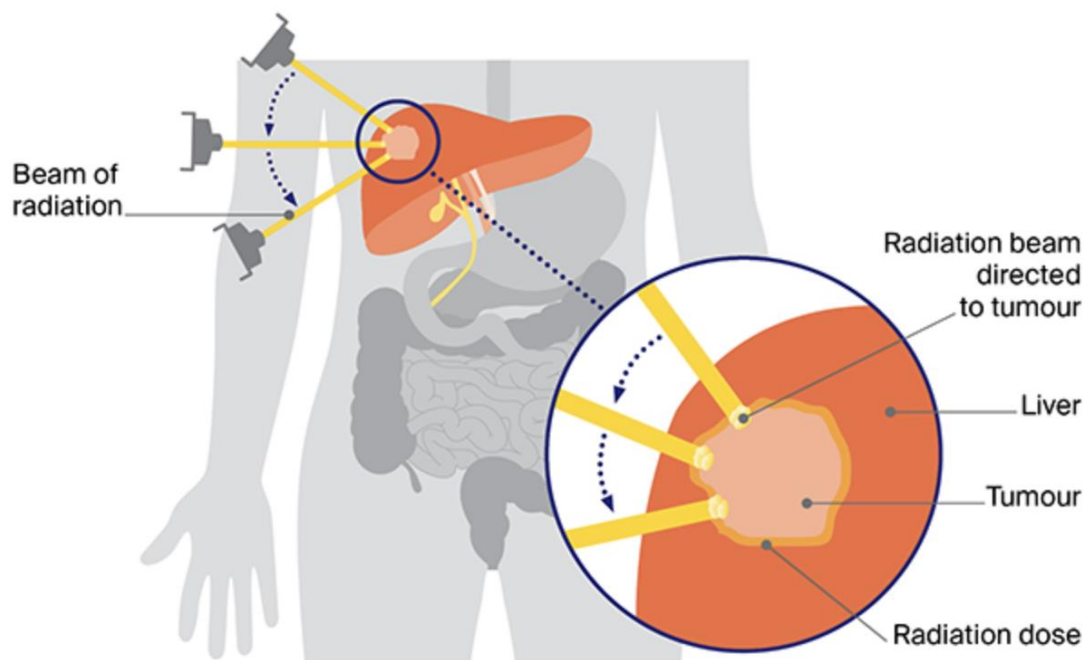


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Hepatocellular carcinoma

- Treatment
 - Locoregional treatment:
 - SBRT

**Stereotactic
Body
Radio-
Therapy**



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Hepatocellular carcinoma

- Treatment
 - Systemic treatment – sorafenib; PBS since 2012
 - Oral multikinase inhibitor VEGFR & PDGFR for advanced HCC
 - Inhibits tumour cell growth and tumour blood vessel growth
 - Improved median survival by 3 months (10.7 vs 7.9 mo)



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ORIGINAL ARTICLE



Sorafenib in Advanced Hepatocellular Carcinoma

Authors: Josep M. Llovet, M.D., Sergio Ricci, M.D., Vincenzo Mazzaferro, M.D., Philip Hilgard, M.D., Edward Gane, M.D., Jean-Frédéric Blanc, M.D., Andre Cosme de Oliveira, M.D., [+17](#), for the SHARP Investigators Study Group [Author Info & Affiliations](#)

Published July 24, 2008 | N Engl J Med 2008;359:378-390 | DOI: 10.1056/NEJMoa0708857



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Hepatocellular carcinoma

- Treatment
 - Systemic treatment – Lenvatinib; PBS since 2020
 - Oral multikinase inhibitor VEGFR, FGFR, PDGFR (and more!) for advanced HCC reducing tumour blood vessel growth
 - No difference in median survival compared with sorafenib (13.6 vs 7.9 mo)
 - Improved median progression-free survival (7.4 vs 3.7 mo)

Clinical Trial > [Lancet](#). 2018 Mar 24;391(10126):1163-1173.

doi: 10.1016/S0140-6736(18)30207-1.

Lenvatinib versus sorafenib in first-line treatment of patients with unresectable hepatocellular carcinoma: a randomised phase 3 non-inferiority trial



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Hepatocellular carcinoma

- Treatment

- Systemic treatment

- **atezolizumab** (PD-L1) IV immune therapy that blocks a protein that cancers use to avoid detection by the immune system allowing immune cell attack
 - **bevacizumab** (VEGF inhibitor) IV therapy blocks tumour from forming new blood vessels starving the tumour of nutrients and oxygen
 - PBS 2020



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ORIGINAL ARTICLE

f X in

Atezolizumab plus Bevacizumab in Unresectable Hepatocellular Carcinoma

Authors: Richard S. Finn, M.D., Shukui Qin, M.D., Masafumi Ikeda, M.D., Peter R. Galle, M.D., Michel Ducreux, M.D., Tae-You Kim, M.D., Masatoshi Kudo, M.D., [+14](#), for the IMbrave150 Investigators* [Author Info & Affiliations](#)

Published May 13, 2020 | N Engl J Med 2020;382:1894-1905 | DOI: 10.1056/NEJMoa1915745 | [VOL. 382 NO. 20](#)



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Hepatocellular carcinoma

- Treatment
 - Systemic treatment
 - Atezolizumab/bevacizumab given in combination IV every 3 weeks
 - Atezolizumab/bevacizumab vs sorafenib
 - **improved 12-month survival (67.2% vs 54.6%)**
 - Side effects
 - Immune reactions (lungs, liver, bowel)
 - Infection
 - High blood pressure



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Hepatocellular carcinoma

- Treatment
 - Supportive care
 - Change from active treatment
 - Focus on symptom relief and quality of life



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Hepatocellular carcinoma

- In summary:
 - HCC is the most common type of liver cancer
 - The incidence of HCC is rising in Australia
 - HCC is the 7th most common cause of cancer death in Australia
 - HCC is the fastest increasing cause of cancer death in Australia
 - Aboriginal and Torres Strait Islander people have higher rates and much poorer outcomes
 - Early diagnosis changes survival
 - Treatment is available, but outcomes can be poor
 - Prevention is better than cure the ACCHS sector has a significant role to play!



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Case study

- 64yo Aboriginal man from Western NSW
- 07/2023 presented with an established diagnosis of cirrhosis attributed to metabolic associated fatty liver disease made many years prior but lost to follow up
- Pruritis for 2 years; no jaundice, ascites, GIH, encephalopathy
- No alcohol for 5 years but intermittent binge-drinking before then
- **PH** – obesity, T2DM, HT, dyslipidaemia, IHD, TIA, AF on A/C, PVD, Grave's disease
- **Medications:** insulin, telmisartan, empaglifozin, gliclazide, pantoprazole, dabigatran, carvedilol, metformin, simvastatin, pregabalin, frusemide, digoxin
- **SH** – lives with partner; 6 children, lost one at age 21 from rheumatic heart disease



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Case study (cont'd)

- **On examination:** 110.4kg, oriented TPP, no asterixis, no stigmata chronic liver disease, firm non-tender liver edge palpable 5cm below right costal margin, no ascites detectable
- **Bloods:** 04/2023 *eGFR 49. ALP 117, GGT 188*, remainder LFTs normal. INR 1.3. *Hb 103, WCC 4.4, plt 62. AFP 140* (normal the year before). HBV exposed/cleared, HCV Ab neg
- **Imaging:** 05/2023 non-contrast CT abdomen, *cirrhosis, small volume ascites*, no liver masses seen, *splenomegaly*



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Case study (cont'd)

- **Bloods** – 07/2023 AFP 620 > 10/2023 AFP 2,800 > 01/2024 AFP 23,000
- **Imaging** – 08/2023 MRI liver (unable to have iodine contrast due to Grave's disease) demonstrated *multifocal HCC with portal vein involvement, prominent ascites*
- Reviewed in RPAH Liver Cancer MDT and palliative systemic treatment recommended (atezolizumab/bevacizumab)



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Case study (cont'd)

- Able to commence treatment regionally 12/2023, delayed so oesophageal varices could be treated, ascites became problematic requiring regular paracentesis, palliative care involved
- Intolerant of treatment so stopped early 2024 & continued supportive care
- Died 02/2024, 7 months after his 1st appointment



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Discussion



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