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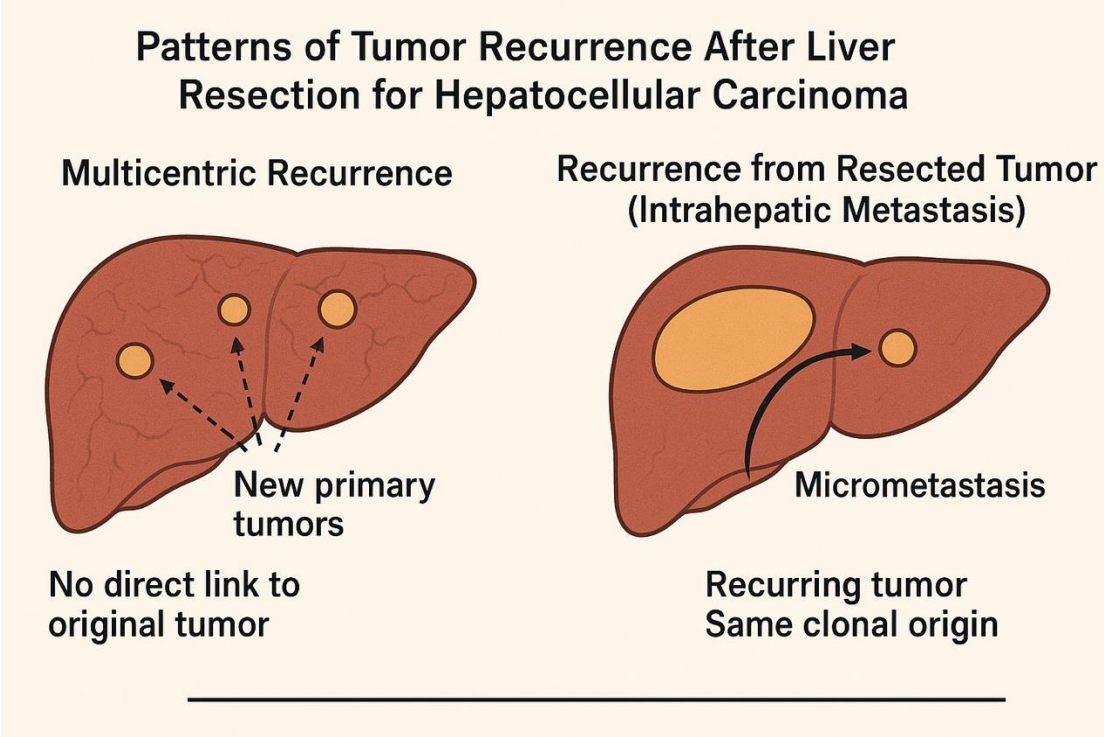
Surgical Management of Hepatocellular Carcinoma

What is the Role of Liver Transplantation?

Kazunari Sasaki, MD

What makes HCC surgical treatment distinct?



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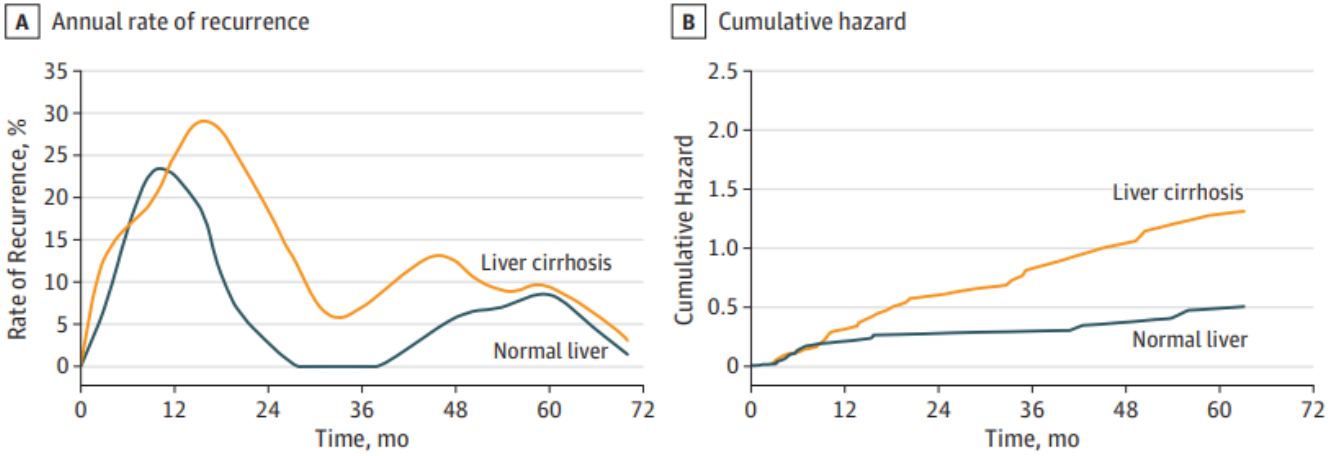
JAMA Surgery | Original Investigation

Effect of Background Liver Cirrhosis on Outcomes of Hepatectomy for Hepatocellular Carcinoma

Kazunari Sasaki, MD; Junichi Shindoh, MD, PhD; Georgios A. Margonis, MD, PhD; Yujiro Nishioka, MD; Nikolaos Andreatos, MD; Akinari Sekine, MD; Masaji Hashimoto, MD, PhD; Timothy M. Pawlik, MD, MPH, PhD

Figure 4. Annual Recurrence Rate and Cumulative Hazard of Recurrence



The recurrence rate among patients in the LC group remained consistently 6% to 15% higher than that in the NL group

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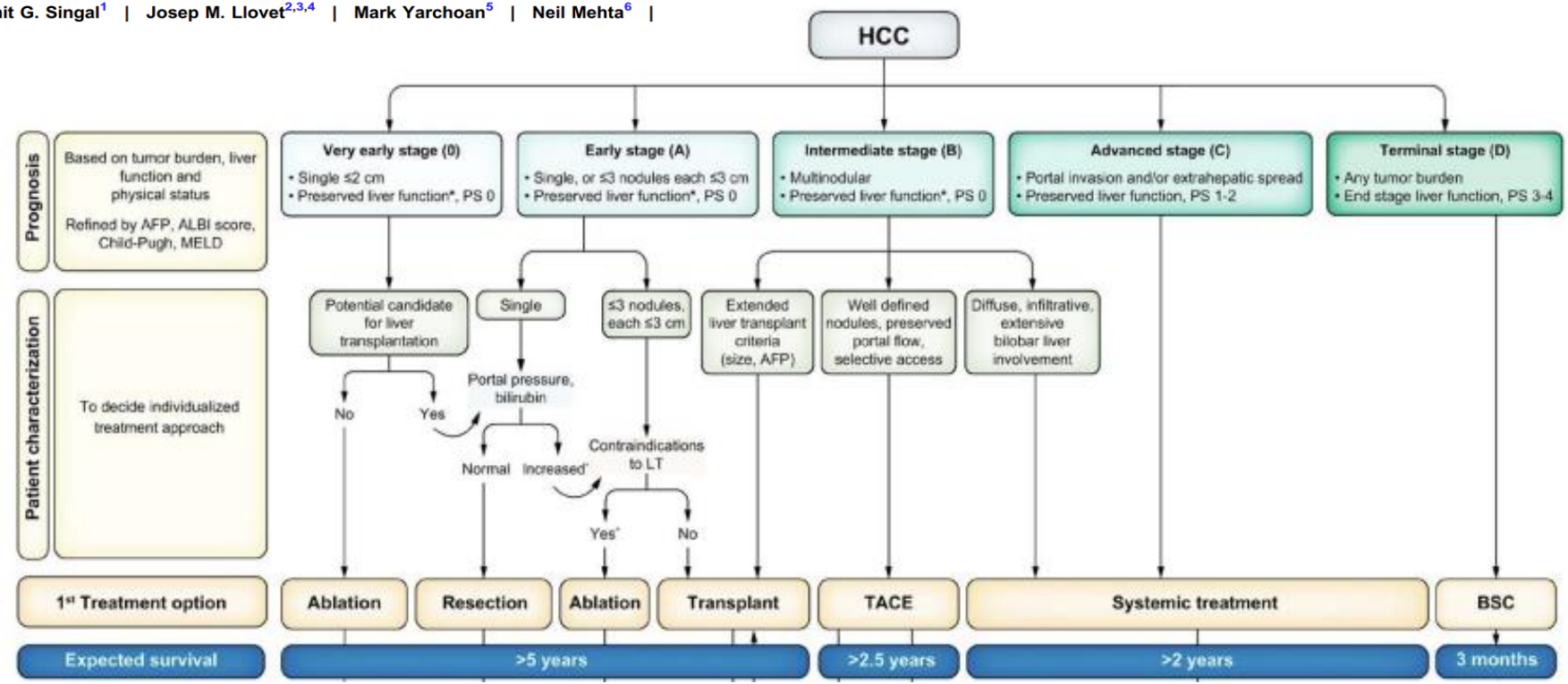
AASLD Practice Guidance on prevention, diagnosis, and treatment of hepatocellular carcinoma

Amit G. Singal[1] | Josep M. Llovet[2,3,4] | Mark Yarchoan[5] | Neil Mehta[6] |



PRACTICE GUIDANCE

AASLD

AASLD Practice Guidance on prevention, diagnosis, and treatment of hepatocellular carcinoma

Amit G. Singal[1] | Josep M. Llovet[2,3,4] | Mark Yarchoan[5] | Neil Mehta[6] |

Algorithm for surgical treatment of early stage HCC

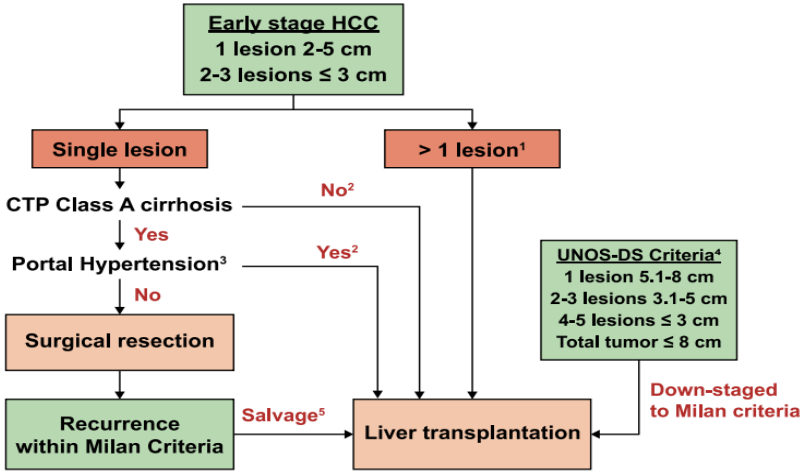


FIGURE 10 Algorithm for surgical treatment of early-stage hepatocellular carcinoma (HCC). Abbreviations: CTP, Child-Turcotte-Pugh; UNOS-DS, United Network for Organ Sharing Down-Staging.
[1]In non-liver transplant (LT) candidate, can consider surgical resection

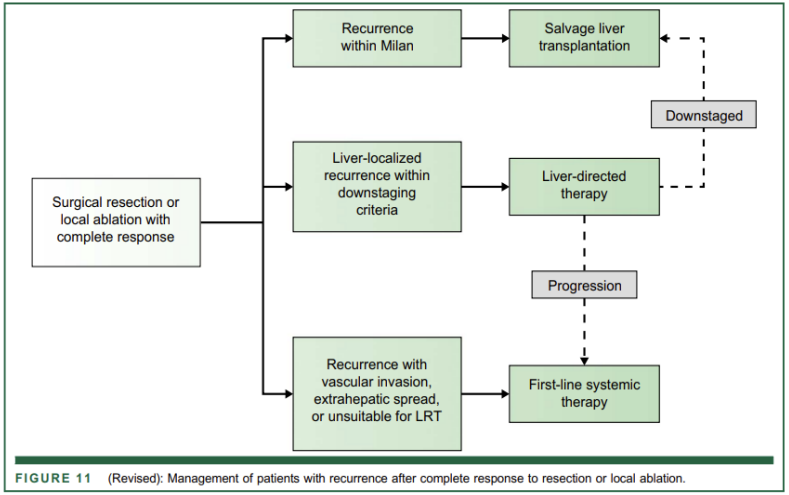


FIGURE 11 (Revised): Management of patients with recurrence after complete response to resection or local ablation.

1 lesion >5 cm and ≤8 cm, OR2–3 lesions, at least one >3 cm and ≤5 cm, with total tumor diameter ≤8 cm, OR4–5 lesions, all ≤3 cm, with total tumor diameter ≤8 cm, No macrovascular invasion or extrahepatic spread must be present.

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Allocation policy

Year	Policy Update	Description
2002	**MELD Implementation**	MELD system replaces CTP for liver allocation. T2 HCC patients assigned **MELD 29**; T1 patients assigned **MELD 24** (exception points).
2003	**Point Adjustment**	T2 reduced to **MELD 24**, T1 reduced to **MELD 20**.
2004	**No Exception for T1**	T1 HCC lesions no longer eligible for MELD exception.
2005	**T2 MELD Exception Reduced**	T2 lesion MELD exception lowered to **22**.
2015	**6-Month Delay Introduced**	Patients must wait **6 months** after listing before exception points are granted. Aimed to assess tumor biology.
2019	**MMaT-3 Policy**	MELD exception based on **Median MELD at Transplant - 3 points** in transplant center's region, increasing equity.
2020	**Standardized Review**	Creation of **National Liver Review Board (NLRB)** for consistent review of HCC exceptions.
2023	**LI-RADS Imaging Requirement**	Imaging for exception requests must follow **LI-RADS** criteria. Enhances standardization and diagnostic accuracy.

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Major transformations in the US LTx environment

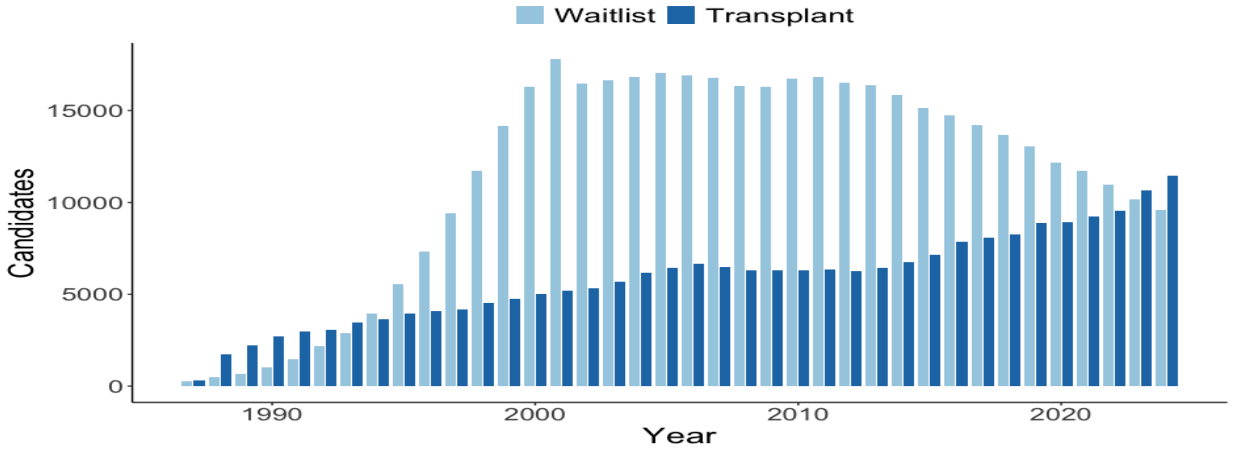
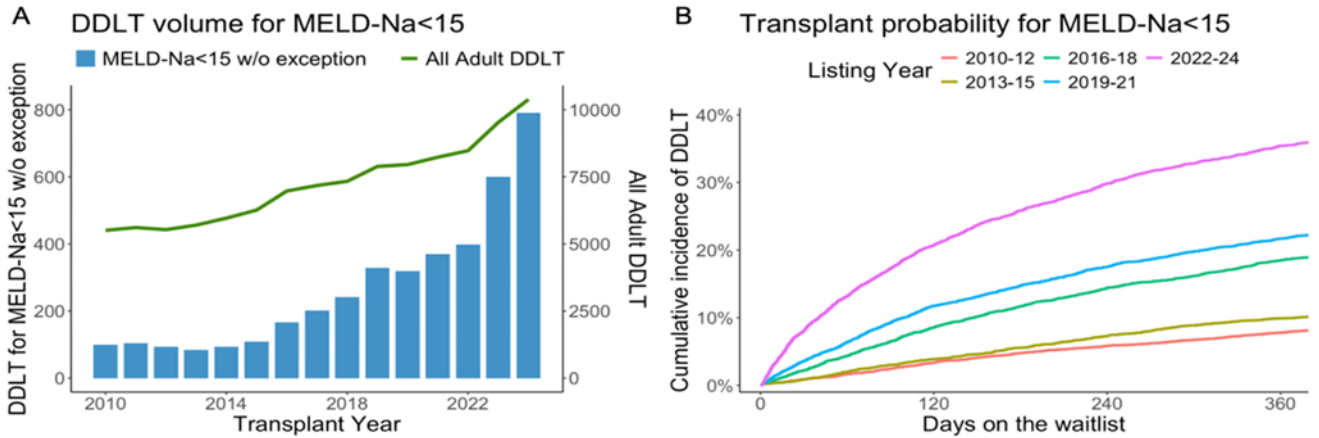


Figure 1



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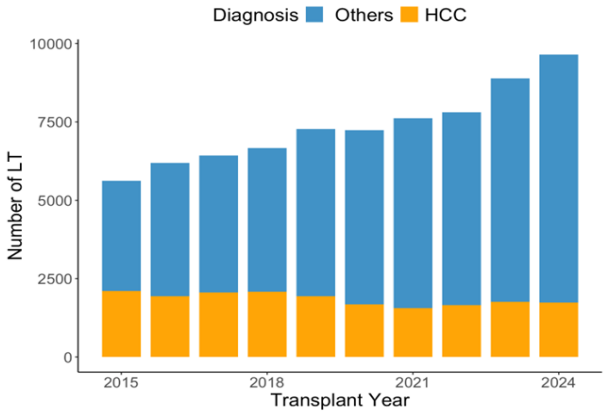
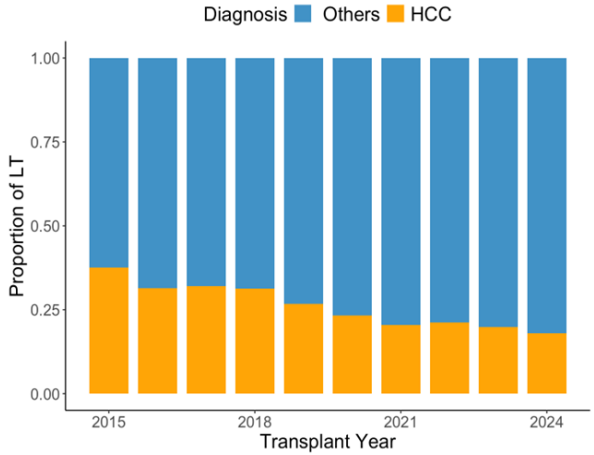
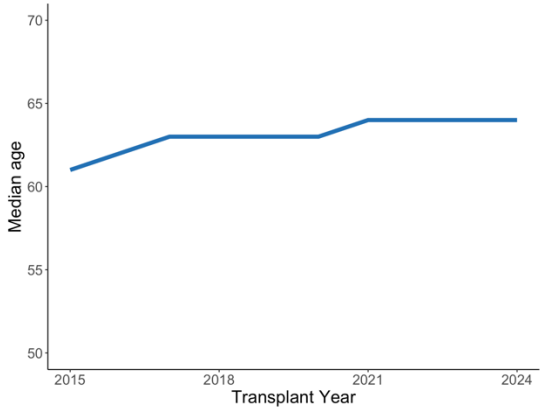
Is there an increase in transplants for HCC?





Absolute/percentage decreased
Median Pt age increased significantly



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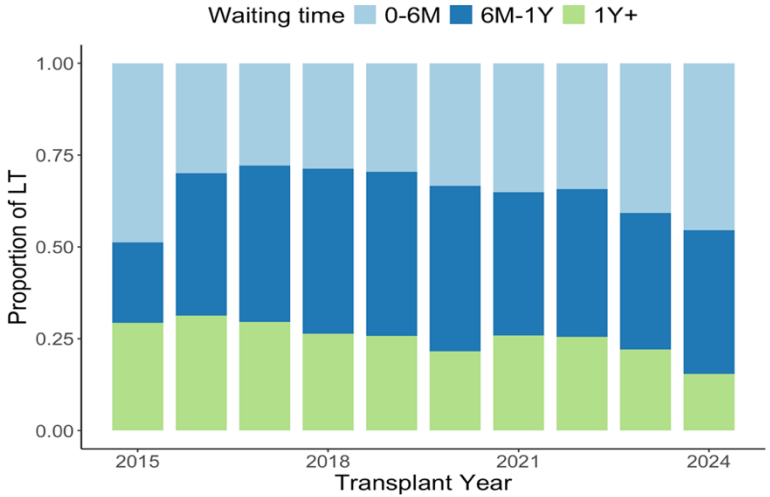
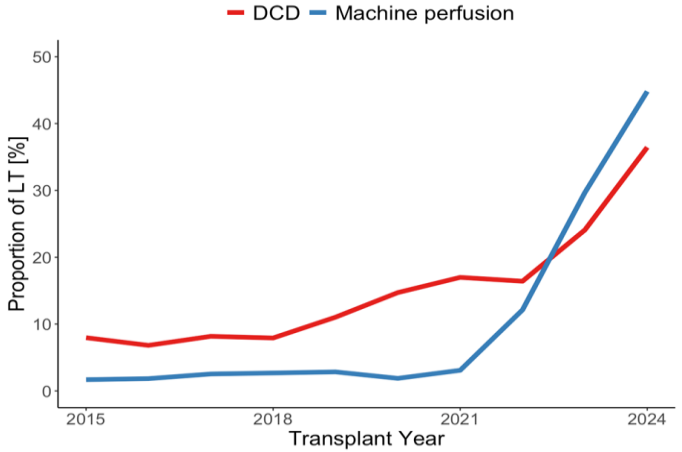
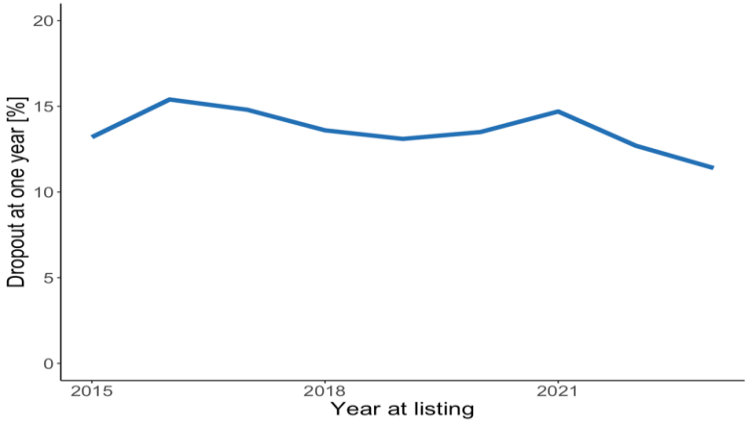
Does Transplant for HCC increase ?







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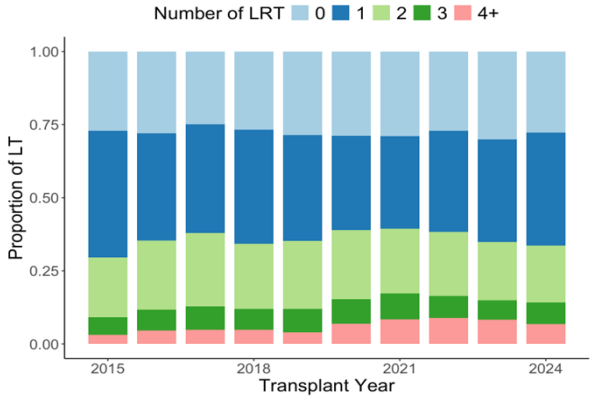
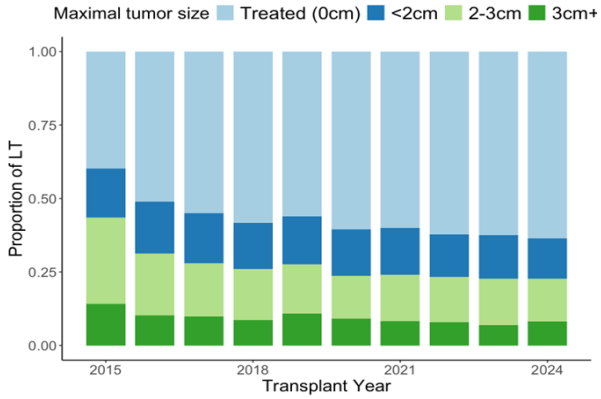
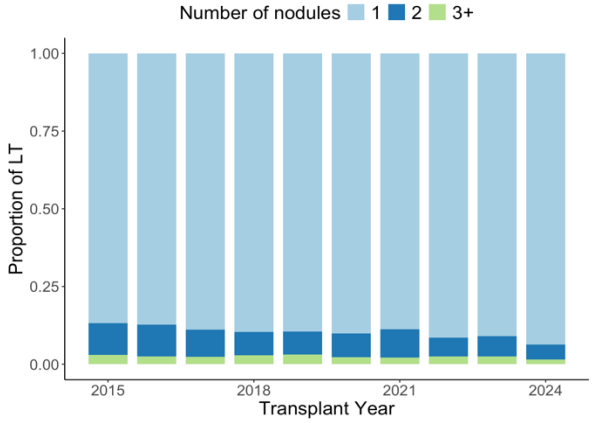
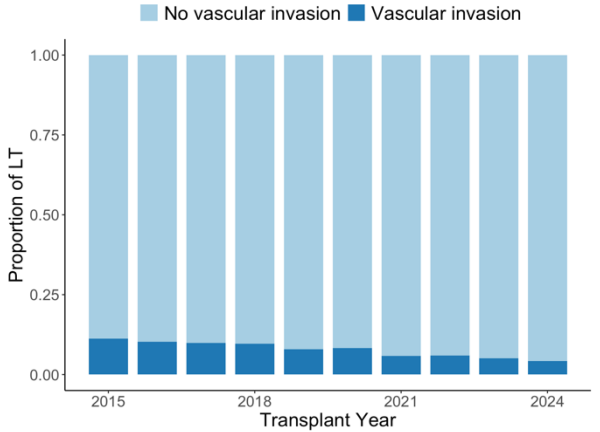
Transplant for HCC tumor characteristics









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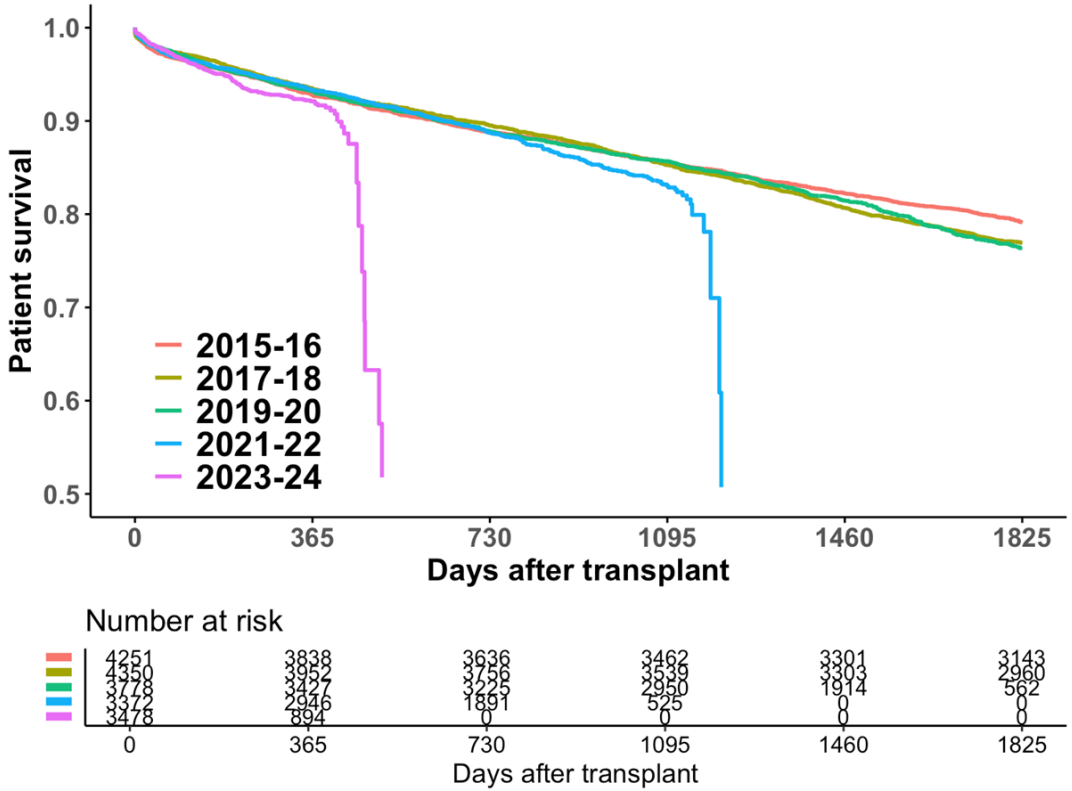
Post Transplant Survival



1-year: 93-94%
3-year: 86%
5-year: 76-79%

OS	1yr	3yr	5yr
2015-16	93.7	86.7	79.2
2017-18	94.6	86.1	76.9
2019-20	93.5	86.2	76.4
2021-22	94.3	83.9	
2023-24	92.2		

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Expert Insight

Time to Expand Selection Criteria for MELD Exception Points in Liver Transplantation for Hepatocellular Carcinoma

Chase J Wehrle, MD,[1] Jiro Kusakabe, MD, PhD, MPH,[2] Toshihiro Nakayama, MD,[3] Charles Miller, MD,[1] Koji Hashimoto, MD, PhD,[1] Timothy M. Pawlik, MD, PhD, MPH,[4] Kazunari Sasaki, MD, PhD,[3] Vincenzo Mazzaferro, MD, PhD,[5] Andrea Schlegel, MD, MPH,[1] and Federico Aucejo, MD[1]

Drawbacks of Milan Criteria based system

Milan Criteria: Low prediction power

- Made in 1996 using 1991-1994 patients
- Only assesses tumor morphology
- Originally generated by pathology specimen
- Binary approach (yes/no)
- Increasing penetration of LRT

Exception point: Too arbitrary

- No supportive scientific evidence
- Does not reflect individual risk of drop-out
- Cannot balance between HCC patients and non-HCC patients

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Development and validation of the HALT-HCC score to predict mortality in liver transplant recipients with hepatocellular carcinoma: a retrospective cohort analysis

Kazunari Sasaki*, Daniel J Firl*, Koji Hashimoto, Masato Fujiki, Teresa Diago-Uso, Cristiano Quint
Federico N Aucejo, Charles M Miller

THE LANCET
Gastroenterology & Hepatology
Volume 2, Issue 8, August 2017, Pages 595-603

HEPATOLOGY AASLD

Charting the Path Forward for Risk Prediction in Liver Transplant for Hepatocellular Carcinoma: Internation: Validation of HALTHCC Among 4,08 Patients

HEPATOLOGY AASLD

Reframing the Approach to Patients With Hepatocellular Carcinoma: Longitudinal Assessment With Hazard Associated With Liver Transplantation for HCC (HALTHCC) Improves Ablate and Wait Strategy

Clinical Gastroenterology and Hepatology 2024;22:2044–2052

HEPATOLOGY

Continuous Risk Score Predicts Waitlist and Post-transplant Outcomes in Hepatocellular Carcinoma Despite Exception Changes

Check for updates

Continuous score which can predict both wait list mortality and post LT outcomes

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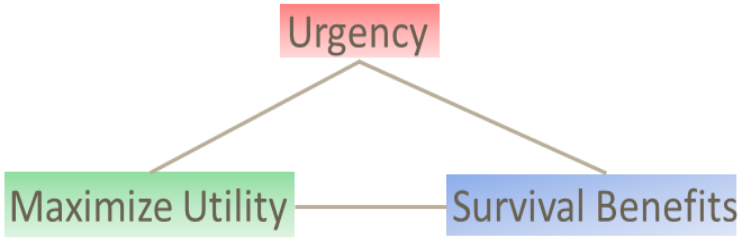
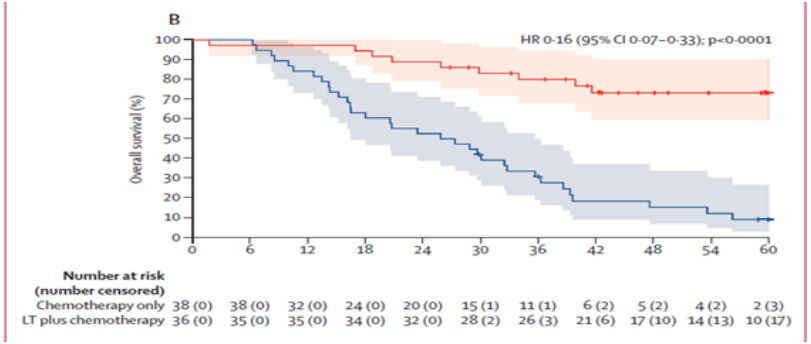
Survival benefit by Liver Transplant



Liver transplantation plus chemotherapy versus chemotherapy alone in patients with permanently unresectable colorectal liver metastases (TransMet): results from a multicentre, open-label, prospective, randomised controlled trial

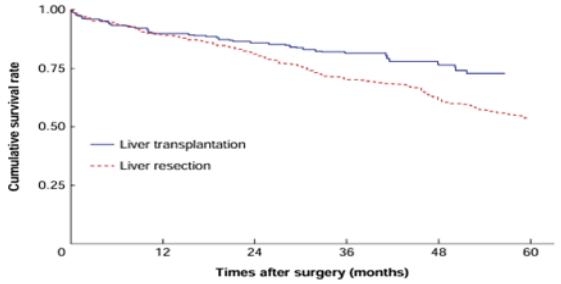


OXFORD

BJS, 2023, 110, 1527–1534
https://doi.org/10.1093/bjs/znad243
Advance Access Publication Date: 7 August 2023
Original Article

Liver transplantation for elderly patients with early-stage hepatocellular carcinoma

Yutaka Endo[1], Kazunari Sasaki[2], Zorays Moazzam[1], Henrique A. Lima[1], Laura Alaimo[1], Muhammad Musaab Munir[1], Chanza F. Shaikh[1], Austin Schenk[1], Minoru Kitago[3] and Timothy M. Pawlik[1,*]



No. at risk

Transplantation	215	187	159	125	98	78
Resection	1907	1613	1323	967	671	454

Fig. 4 Kaplan–Meier survival curves after propensity score overlap weighting adjustment for elderly patients with stage I–II hepatocellular carcinoma undergoing liver transplantation *versus* surgical resection

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