

# Patient Pathways and Healthcare Resources Use in Hepatocellular Carcinoma: Full Analyses of the OPAL Study in Portuguese Population

HSD125



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## Key Messages:

- OPAL study findings demonstrate that **most non-curative HCC patients present in the hospital setting with advanced disease** and often lacking reported signs/symptoms.
- Alcohol consumption** is confirmed as the **main aetiology** of HCC in Portugal.
- Involvement of **different medical specialties** in the diagnosis and treatment of HCC reflects the **complexity and heterogeneity** of healthcare unit practices across Portugal.
- Results of the OPAL study allow an **updated characterization of HCC in Portugal** and reinforce the need to **develop programs** to change lifestyles, monitor cirrhotic patients and anticipate diagnosis.

## BACKGROUND

Hepatocellular Carcinoma (HCC) represents approximately 80% of all primary liver cancers<sup>1</sup>. The main causes of HCC are cirrhosis resulting from alcohol misuse, chronic hepatitis B (HBV) or C (HCV) infections and non-alcoholic fatty liver disease. Although a decrease in HCC related to HCV and HBV is being observed, an increase of non-alcoholic fatty liver disease as cause of HCC is increasing particularly in developed countries<sup>2</sup>. Major HCC etiology variations may contribute to diagnostic challenges, namely due to the lack of disease awareness, lack of surveillance programs and involvement of new players (medical specialties). In addition, therapeutic advances have increased the complexity of treatment algorithm.

Published evidence on the characterization of HCC in Portugal is limited, posing challenges in identifying current needs and limitations in the diagnosis and treatment of this condition.

## OBJECTIVE

The primary objective of OPAL study was to describe demographic and clinical characteristics, treatment patterns and sequence of treatments of HCC patients. **This analysis aims to present the patient pathway for HCC and healthcare resources utilization (HRU) in Portugal.**

## METHODS

OPAL is a global study (9 European countries), non-interventional, longitudinal, multi-center, cohort study to characterize **newly diagnosed HCC patients**. For the **Portuguese Cohort**, adult patients (≥ 18 years at the time of diagnosis) with a diagnosis between 1st January **2018** and 31st December **2021**, were considered eligible for study inclusion (Figure 1).

To avoid selection bias, each hospital was requested to recruit the first 10 patients diagnosed at each year of the recruitment window. Available data was collected retrospectively from date of initial diagnosis until 31st December 2022 (end of study), lost to follow-up or death.

Data was retrospectively extracted from local electronic medical records and/or paper-based patient charts in **8 Portuguese sites** (Figure 2).

The study received approval from each hospital ethics committee. Informed consent was required for patients alive at the study start. An Inform Consent waiver was approved by each hospital ethics committee for deceased or lost to follow-up patients.

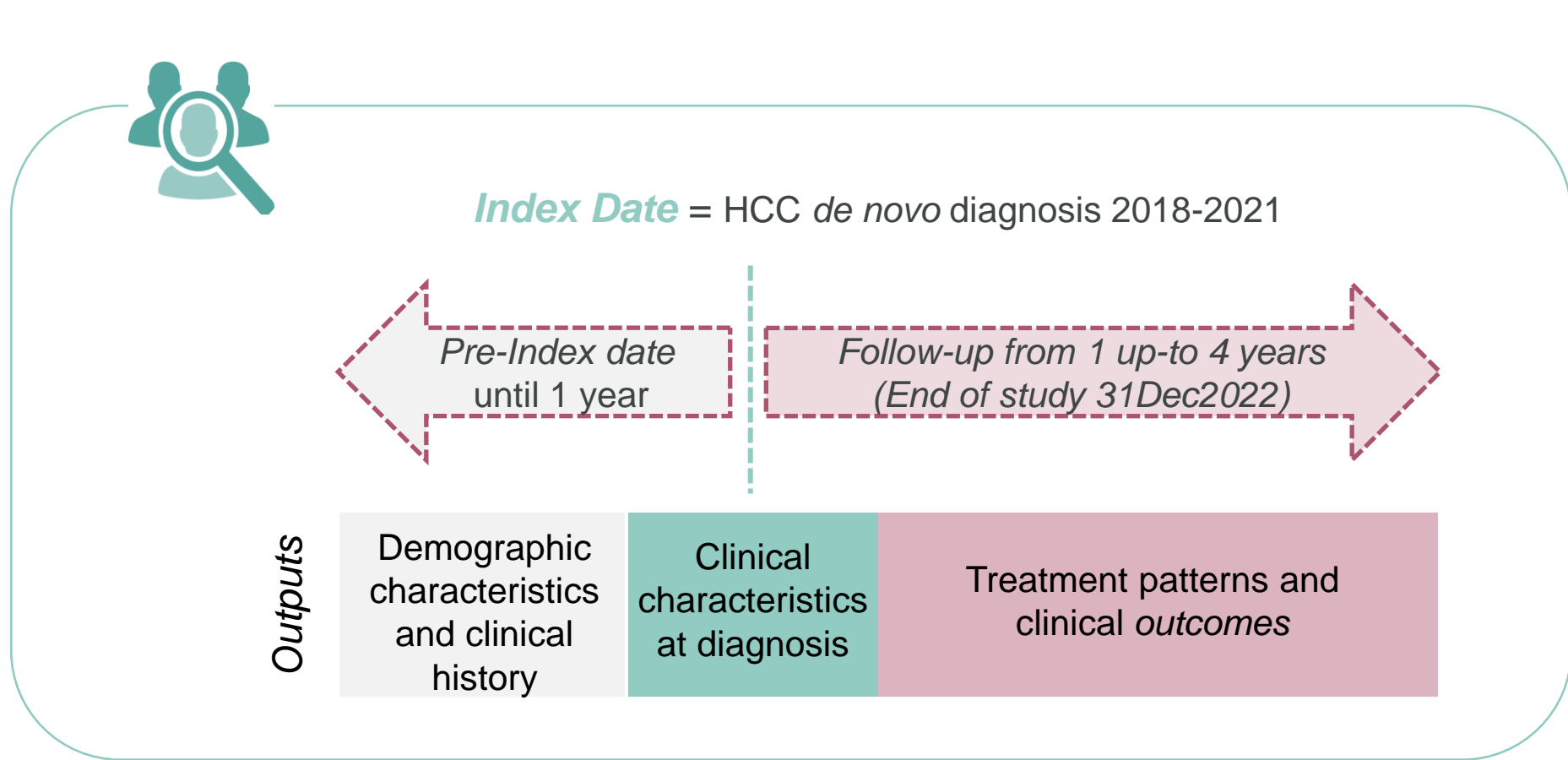


Figure 1. Study design diagram.



Figure 2. OPAL site's geographic location\*

## RESULTS

The final cohort included **290 patients**. Patient's socio-demographic and clinical characteristics are summarized in Table 1. Cirrhosis was observed in 82% (n=231), decompensated in 24% (n=63). Alcohol use was identified as the most common hepatic disease etiology. Most patients (n =144; 70%) had non curative disease at diagnosis (BCLC B-D) and decompensated cirrhosis was observed in 78% (n=18/23) of terminal stage patients (BCLC D).

Table 1. Socio-demographic and Clinical characteristics (n= 290)

	Variable	Value - n (%)		Variable	Value - n (%)
Patient Status at inclusion	Alive	52 (18%)	Hepatic Disease etiology – Unique (n=196)	Alcohol use	145 (74%)
	Dead	213 (73%)		HCV	27 (14%)
	Lost to follow-up	25 (9%)		HBV	5 (2.5%)
Age at diagnosis	Mean; SD [min-max]	67; 9.5 [43-91]		MASLD	10 (5%)
				Others	9 (4.5%)
Gender	Male	252 (87%)	Hepatic Disease etiology – Mixed (n=70)	Alcohol use + Others (HCV; MASLD; HBV)	66 (94%)
	Female	38 (13%)		Others	4 (6%)
Alcohol use	Current user	109 (42%)	BCLC category (n=207/290)	0 – Very early stage	5 (2%)
	Former user	128 (50%)		A – Early stage	58 (28%)
	Never user	21 (8%)		B – Intermediate stage	57 (28%)
Cirrhosis	Missing	32		C – Advanced stage	56 (27%)
	No cirrhosis	49 (18.5%)		D –Terminal stage	31 (15%)
	Yes, compensated	152 (57.5%)		Missing	83
Cirrhosis	Yes, decompensated	63 (24%)	Disease complications	Portal hypertension <sup>§</sup> (n= 245)	97 (40%)
	Yes, no characterization	16 (6%)		Esophageal varices (n= 231)	95 (41%)
	Missing	10		Ascites (N=280)	83 (30%)
Hepatic Disease ethiology	Unique	196 (74%)		Main portal vein tumor thrombosis (N=278)	58 (21%)
	Mixed	70 (26%)		Vascular invasion (N=274)	46 (17%)
	Missing	24	*Clinically significant		

## Patient Pathway

Reporting of signs and symptoms was registered for 68 (25%) patients, mostly within non-curative / terminal stage cohort (n=54; 79%). Mean time between signs and symptoms report and HCC diagnosis was 2.1 months [SD 2.0; 0-8.6 months]. Most patients were previously followed at the hospital unit responsible for study inclusion (n=226; 80%). The medical specialty most commonly responsible for diagnosis was hepatology and systemic treatment was equally applied by oncology and hepatology specialties (Figure 3).

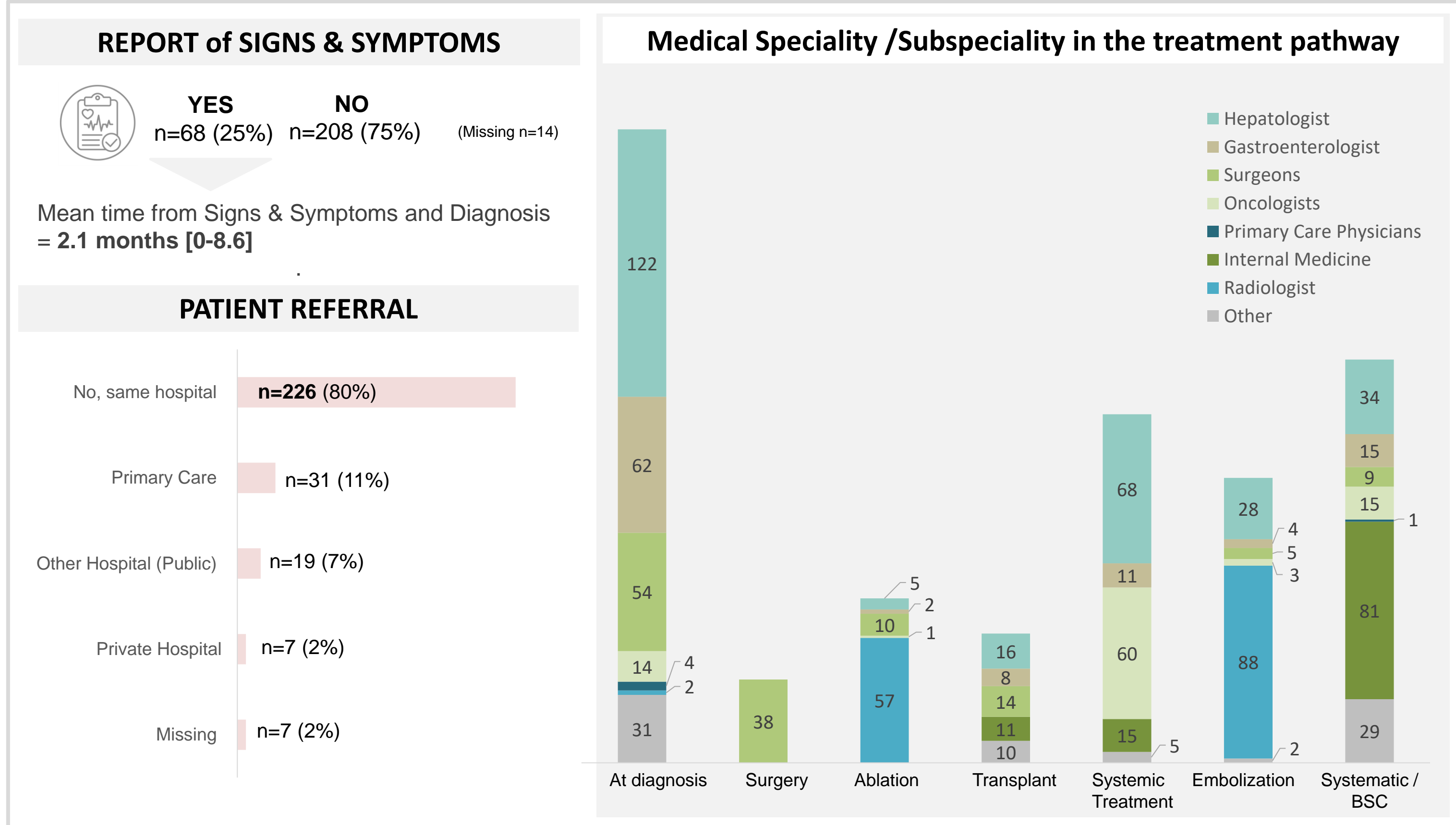


Figure 3 – HCC Patient Pathway (Signs and Symptoms report; Referral pre-diagnosis; Medical Speciality at diagnosis and per treatment type)

## Healthcare Resources Utilization

The number of outpatient and emergency visits performed per patient were higher for patients with intermediate stage at diagnosis. Regarding hospitalizations, mainly related with surgical procedures, the frequency was higher for early stages (Figure 4).

Hospitalization reasons are presented in Figure 5.a and hospitalizations distribution per medical service presented in Figure 5.b. Non-curative disease/terminal stage cohort was associated with longer hospitalizations (+2 days).

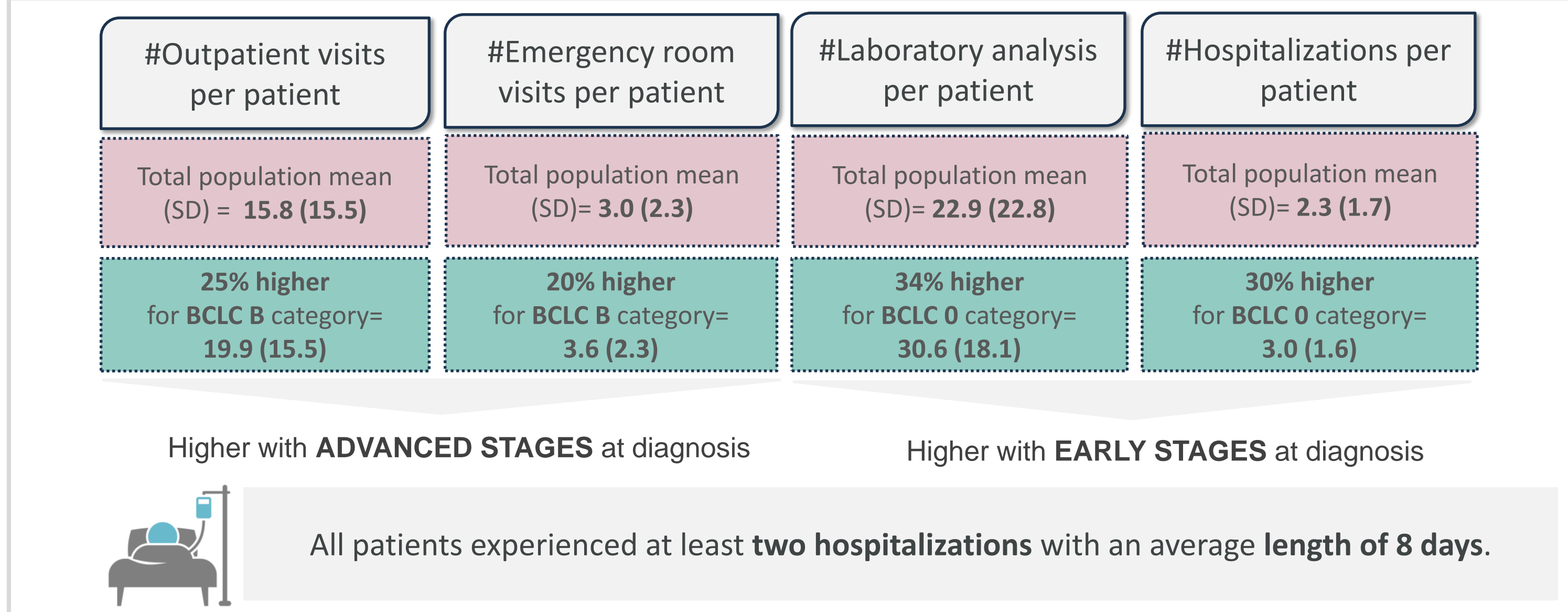


Figure 4 – Healthcare Resource Utilization per patient according with BCLC stage at diagnosis.

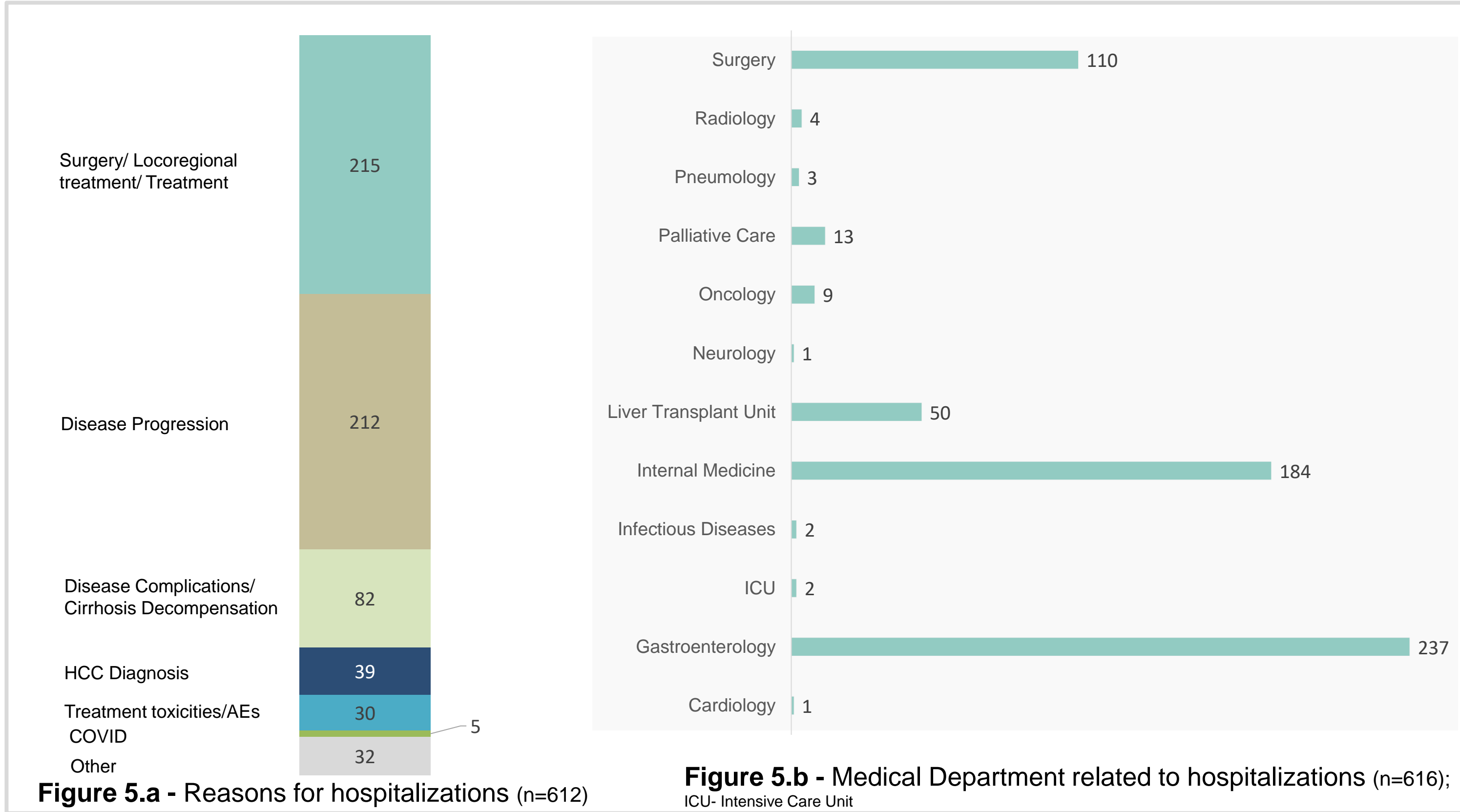


Figure 5.a - Reasons for hospitalizations (n=612)

Figure 5.b - Medical Department related to hospitalizations (n=616); ICU- Intensive Care Unit

## CONCLUSIONS

- Alcohol consumption** has been confirmed as the **leading cause of HCC**, reinforcing the need for public health initiatives targeting alcohol misuse.
- A significant proportion of patients reported signs and symptoms close to the time of diagnosis, suggesting that **earlier symptom recognition and reporting could potentially lead to earlier detection** and improved outcomes.
- Most HCC patients are **diagnosed at advanced, non-curative stages**, highlighting the need for earlier detection and intervention strategies.
- This study findings indicate **higher outpatient and emergency visits for patients with intermediate stage** at diagnosis, and **longer hospitalizations** for those with **terminal stage**.
- The characterization of HCC presented by the OPAL study provides a foundational understanding of the **disease landscape in Portugal**.

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