

INTRODUCTION

Colorectal cancer (CRC) is the third most common cause of cancer and the second most common cause of cancer-related death worldwide. Survival rates have increased thanks to biotherapy commercialization, but metastatic CRC (mCRC) remains a lethal disease with a 5-year survival rate of approximately 14%.¹

Biotherapies are available since nearly a decade, but recent data on their utilization in real world in France are lacking, as well as the number of prevalent patients at metastatic stage receiving treatment. Biotherapy administration require specialized care and disparity of access may exist following repartition and type of care structure across region in France.

OBJECTIVE

- The main objective for this study is to describe the prevalence of mCRC and describe the biotherapy use for this pathology in France in 2023.
- Secondary objectives include :
- To describe mCRC patients and disease characteristics, including the sidedness of the primary tumor
 - To describe healthcare resource for patients with mCRC and treated with extra-diagnosis related group (DRG) list treatment in France
 - To describe treatment access across regions in France

METHOD

This is a retrospective cohort study of patients treated for a mCRC in the french hospital discharge database (programme de médicalisation des systèmes d'information, PMSI). Patients included in this study have been diagnosed with mCRC and treated with extra-DRG treatment identified from international classification of disease tenth revision (ICD-10) codes associated with each hospital stay. Treatment lines and indications were identified from liste en sus (LES) codes indications.

Follow-up started from index date to censor, including death, last health record or end of study period, whichever occurs first. Maximum follow-up was from January 1st 2023 to December 31th 2023.

RESULTS

23,147 adult patients diagnosed with a mCRC and having received an extra-DRG treatment were included in the study over the year 2023.

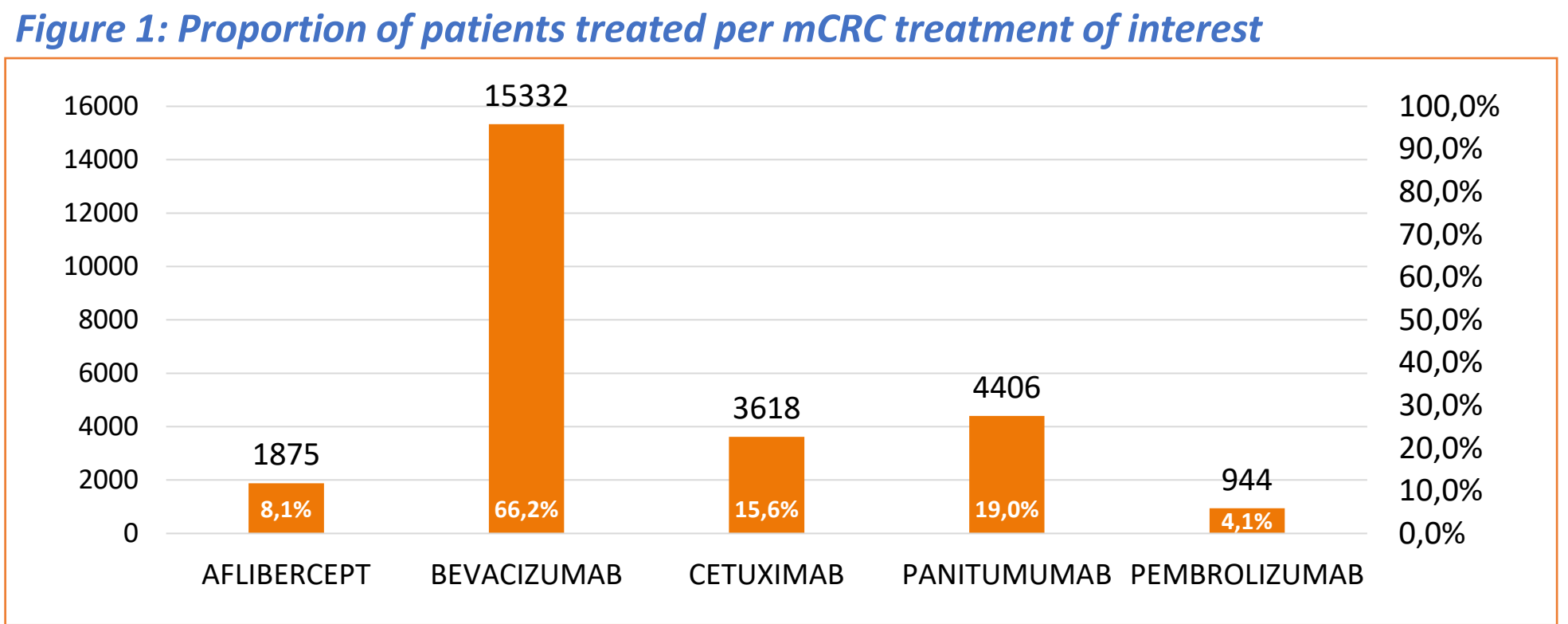
The mean (SD) age was 68 (±11.7) years old, with 34% being aged between 70 and 79 years. 58.6% were male (table 1).

19.6% of patients had one comorbidity and 12.0% had multiples. Most frequent comorbidities was hypertension (22.8%) diabetes (10.8%) and atrial fibrillation (5.6%).

Table 1 : Patients characteristics

Patients characteristics		
	N	%
Age		
Mean (SD)	68.1 (11.7)	-
Median	70	-
Q1-Q3	61-76	-
Age group		
[18-40[432	1.9%
[40-60[4,521	19.5%
[60-70[6,602	28.5%
[70-80[7,972	34.4%
≥80	3,620	15.6%
Gender		
Men	13,558	58.6%
Women	9,589	41.4%
Comorbidities		
Atrial fibrillation	1,307	5.6%
Hypertension	5,269	22.8%
Diabetes	2,497	10.8%
Hypothyroidism	537	2.3%
Obesity	1,224	5.3%
None	15,826	68.4%
One	4,543	19.6%
Multiple	2,778	12.0%
At least one	7,321	31.6%

Regarding extra-DRG treatments, 66.2% of patients were treated with Bevacizumab, 19.0% with Panitumumab and 15.6% with Cetuximab (figure 1).



Treatment lines were obtained from the LES codes indication.

For Bevacizumab, the LES indication does not allow to differentiate 1st line from 2nd line plus. For cetuximab, only 579 patients were categorized in 1st line, the treatment line for the remaining 2,080 were not identifiable (table 2). For panitumumab, 2,730 patients were treated for a 1st line and 2,006 were treated for a 2nd line.

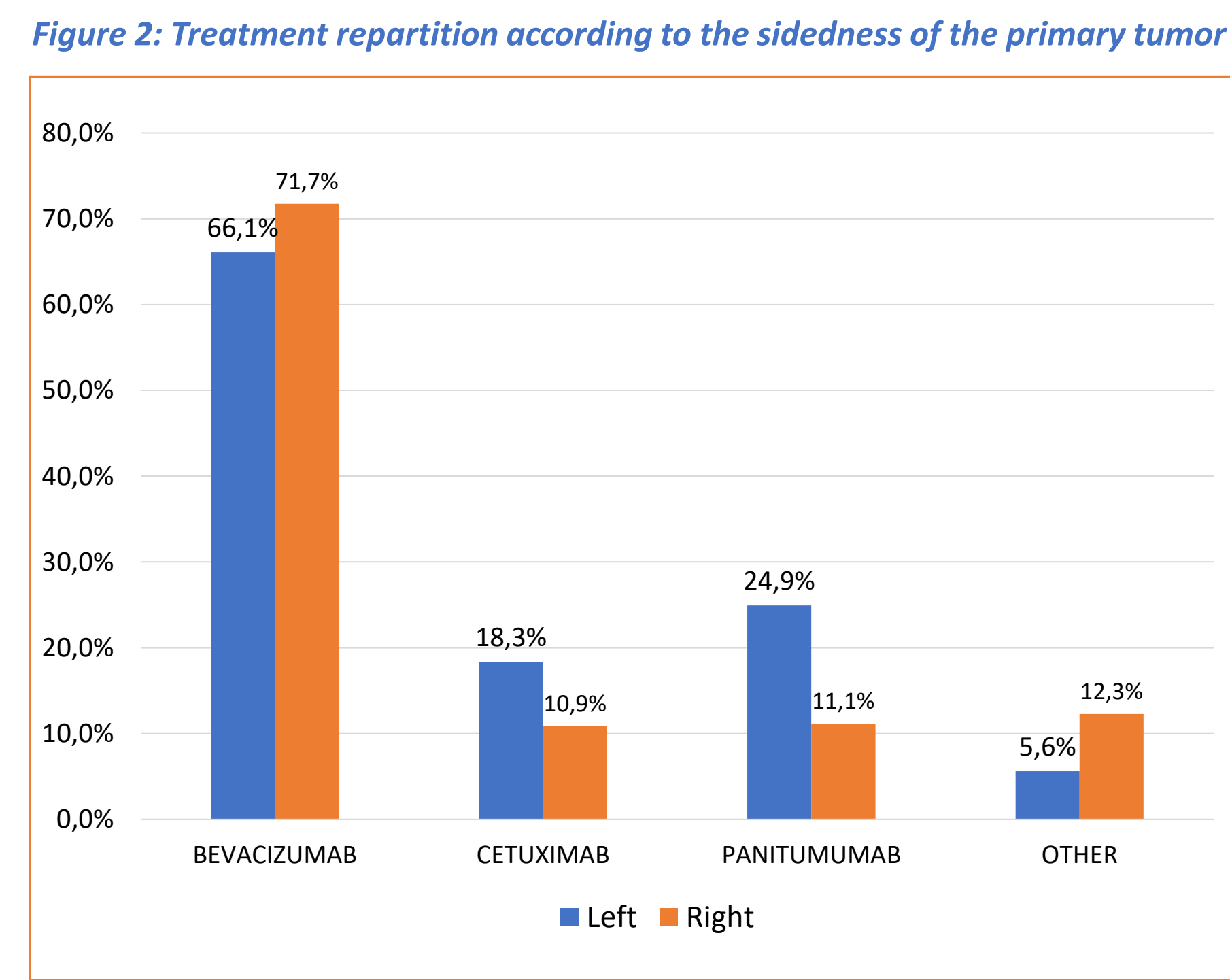
1,875 patients were treated with aflibercept for a 2nd line or more, and 941 patients were treated with pembrolizumab for a 1st line (patients with deficient mismatch repair (dMMR) or microsatellite instability (MSI) CRC).

Table 2: Distribution of patient by treatment line

Treatment	Treatment line	Patient (n)
Aflibercept	2nd line or more	1,875
	Not identifiable	<11
Bevacizumab	2nd line or more	<11
	Not identifiable	15,330
Cetuximab	1st line	1,311
	2nd line or more	579
Panitumumab	Not identifiable	2,080
	1st line	2,730
Pembrolizumab	2nd line or more	2,006
	Not identifiable	<11
	1st line	941
	Not identifiable	<11

Laterality of tumors was defined by grouping ICD-10 codes into three groups: right (C180 / C182 / C183), left (C185 /C186 /C187 /C188 /C19 /C20) and transverse (C184 and C189). As a result, 59.7% of patients had a left primary tumor and 23.7% had a right primary tumor. 25.7% were coded as transverse tumors (table 3).

Among patients for which tumor sidedness was defined, a higher percentage of patients with right-sided primary tumors was treated with Bevacizumab (71.7% vs. 66.1%) (figure 2). In contrast, more patients treated with Panitumumab and Cetuximab had left-sided primary tumors. No prioritization has been applied : a patient may have diagnosis codes for tumors on both sides and may receive treatment with multiple drugs.

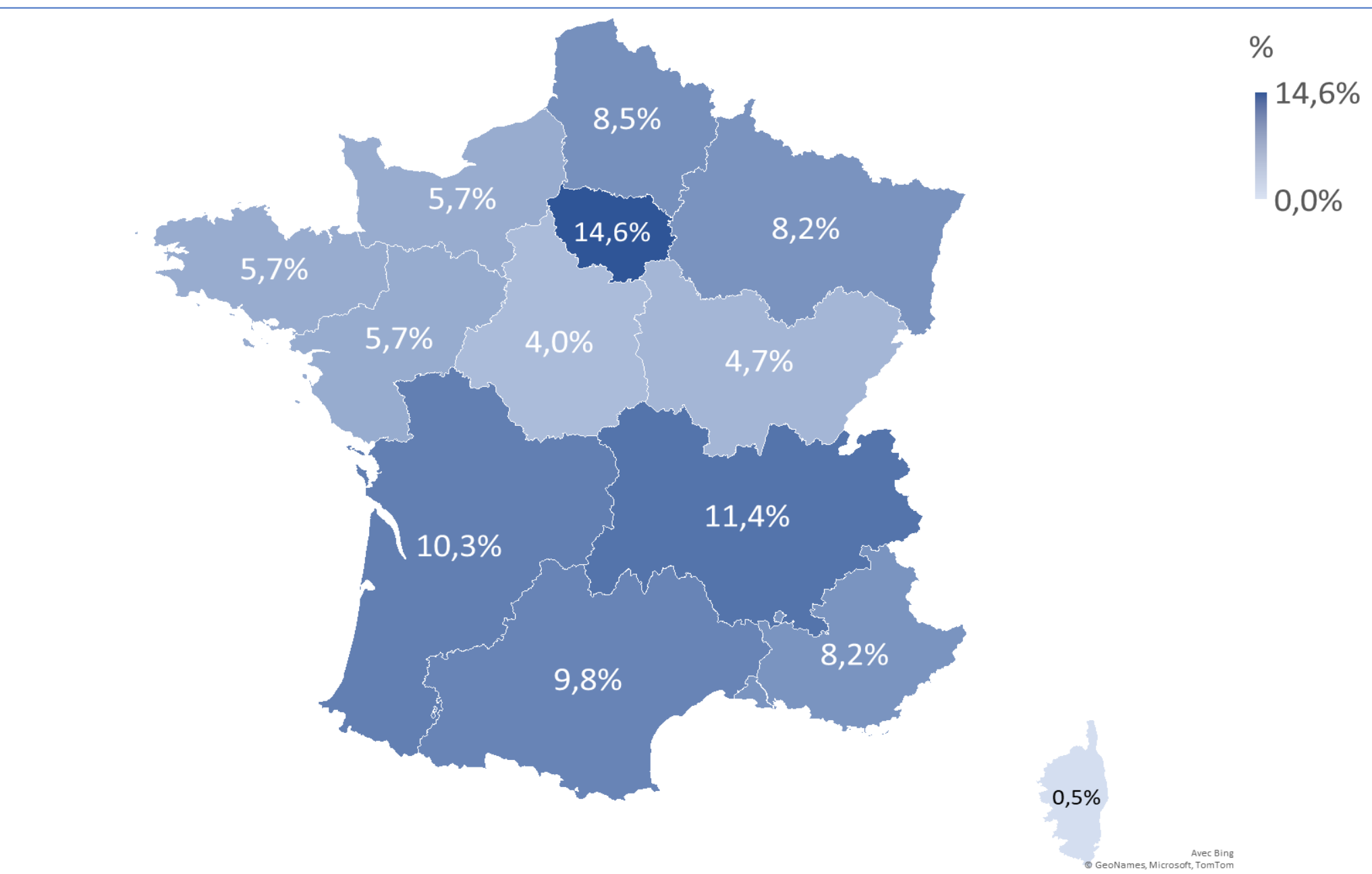


The repartition for the type of care structure were defined according the 1st treatment administered at hospital during the year 2023. 32.8% of patients were treated in hospital centers, 32.4% in private structure, 16.8% in university hospital, 9.1% in comprehensive cancer clinics (table 3).

Table 3: Repartition of care structure at 1st treatment stay

Type of structure for disease management (1 st treatment)		
Hospital centers	7,599	32.8%
University Hospitals	3,891	16.8%
Comprehensive cancer centers	2,095	9.1%
Nonprofit structures	2,054	8.9%
Private structures	7,508	32.4%

Region concentrating more than 10% of patients treated for a mCRC were Ile de France (14.6%), Auvergne Rhône-Alpes (11.4%) and Occitanie (10.3%) (figure 4).



The repartition per region has been made on the overall dispensed treatments. Bevacizumab is widely used across the territory, in more than 60% of patients in every region of metropolitan France. Panitumumab is used in between 13.4% (Provence-Alpes-Côte-d'Azur) and 30.7% (Martinique) of patients depending on the region considered. Cetuximab is used from less than 1.0% (in overseas territories : Martinique, Mayotte, Guyane, St-Pierre et Miquelon) to 26.7% in Corse. Pembrolizumab is used in a maximum of 5.1% of patients (La Réunion) and Aflibercept in 21.7% of patients (La Réunion) (table 4).

When focusing on epidermal growth factor receptor (EGFR) inhibitors, while panitumumab is generally preferred to Cetuximab in most regions (difference range from 2.0% to 14.0% more patients treated), four regions have a predominant use of cetuximab (Provence-Alpes Côte-d'Azur, Haut-de-France, Ile-de-France, Corse).

Table 4: Treatment repartition among patients with extra-DRG treatment across regions in France

	Panitumumab	Bevacizumab	Cetuximab	Aflibercept	Pembrolizumab
Auvergne Rhone-Alpes	21.6%	67.9%	10.1%	9,2%	4,0%
Bourgogne Franche-Comte	21.7%	68.8%	7.7%	9,6%	5,0%
Bretagne	19.0%	66.4%	15.6%	6,4%	5,4%
Centre Val-De-Loire	22.6%	65.3%	13.3%	11,6%	4,2%
Corse	21.7%	54.2%	26.7%	11,7%	<1%
Grand-Est	19.3%	69.4%	14.4%	3,9%	4,7%
Guadeloupe	19.3%	74.0%	<1%	14,0%	0,0%
Guyane	0.0%	<1%	<1%	0,0%	0,0%
Hauts-De-France	14.8%	64.0%	23.8%	4,4%	3,4%
Ile-De-France	15.4%	66.7%	18.5%	9,8%	4,0%
La Reunion	24.3%	60.7%	7.4%	21,7%	5,1%
Martinique	30.7%	67.3%	<1%	5,9%	0,0%
Mayotte	<1%	0.0%	<1%	0,0%	<1%
Normandie	23.4%	64.9%	14.3%	6,5%	3,9%
Nouvelle-Aquitaine	21.5%	66.8%	13.3%	8,7%	3,7%
Occitanie	18.0%	68.1%	16.2%	6,8%	4,7%
Pays De La Loire	25.0%	60.4%	14.7%	9,1%	3,4%
Provence-Alpes-Côte-D'azur	13.4%	64.9%	22.6%	8,7%	3,6%
Saint-Pierre Et Miquelon	0.0%	0.0%	<1%	0,0%	0,0%

DISCUSSION & CONCLUSION

This study provides a recent update of prevalence and region distribution of mCRC treated patients in France, highlighting the predominant use of Bevacizumab to treat mCRC irrespective of tumor sidedness and treatment line.

Latest epidemiology update in France before this study is based on national cancer registry. Incidence of treated mCRC was estimated to be around 27,000 new cases² including 17,000 (64.5%) undergoing chemotherapy³. These numbers are consistent with the 23,147 prevalent patients identified in this study, confirming our results.

Some limitations inherent to French medico-administrative database and to the timeframe considered are to be taking into account :

- This study only include 2023 prevalent patients. No distinction can be made between patients pursuing their treatment from previous years and patients initiating their treatment (incident patients) in 2023.
- Treatment line is not always identifiable, depending on the accuracy of indication stated in LES codes. This is especially true for bevacizumab, for which it is not possible to distinguished first line from later lines.

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Contact information
AE and DM are employees of GERS-CEGEDIM, which received funding from Amgen SAS to conduct this analysis. BM and OC are employees of AMGEN SAS and own shares in the company.

Abbreviation
LES : Liste en sus ; mCRC : metastatic colorectal cancer ; DRG : Diagnosis Related Group ; dMMR : icient mismatch repair ; MSI : microsatellite instability ; PMSI : programme de médicalisation des systèmes d'information ; LES : Liste en sus