

Objectives

The main objective of the study was to assess the number of patients hospitalized for sickle-cell disease (SCD). The secondary objectives were to estimate proportion of patients experiencing acute manifestation of SCD: Vaso-Occlusive Crisis (VOC) or being hospitalized for SCD management by Blood Transfusion (BT). These estimations were studied at national level (including overseas) and at regional level.

Methods

A cross sectional study of all 2016 hospital stays related to SCD, using ICD10 codes as D57.0 “Sickle-cell anaemia with crisis”, D57.1 “Sickle-cell anaemia without crisis”, D57.2 “Double heterozygous sickling disorders” or D57.8 “Other sickle-cell disorders” as principal/related diagnosis (PD/RD) or Significantly associated diagnosis (SAD), were extracted from the French national hospital discharge database (PMSI MCO). Thanks to their unique ID, patients have been tracked over 2016 hospital stays. Patients with only sickle cell trait, D57.3, have not been selected in our population, indeed these patients do not usually experience symptoms of the disease.

VOC has been defined as hospital stay with ICD10 codes D57.0 as PD/RD, and BT has been defined as hospital stay with ICD 10 code Z51.3 “Blood transfusion” as PD and/or with medical procedures for transfusion coding according to French CCAM codes (FELF00(4/5/7/11/12 or FEPF003)). The CCAM codes FELF00 4/7/11 represent a transfusion of red cell concentrates (RCC) whereas CCAM codes FELF007/12 and FEPF003 characterize an exchange transfusion.

Annual rates of hospitalized patients were standardized on age and gender using population residing in France on 1 January 2015 as reference.

Conclusion

This descriptive study showed real differences in SCD hospitalization rate according to regions. More than half population is hospitalized in “île de France” likely due to the population of African origin (13.7% of foreign population)¹ larger than in other regions.

The management of the disease seems different in French overseas departments, mean age is higher and the use of BT during VOC is half less important than in Metropolitan France. It would be useful to identify the reasons of these differences, may be due to a better management of this disease thanks to the primary care or recourse to belated healthcare.

This information could help health public policy to better manage this disease.

Sickle-cell disease related hospitalizations in France: a regional descriptive analysis from the French medical information system database in 2016

Standardized rate of hospitalization

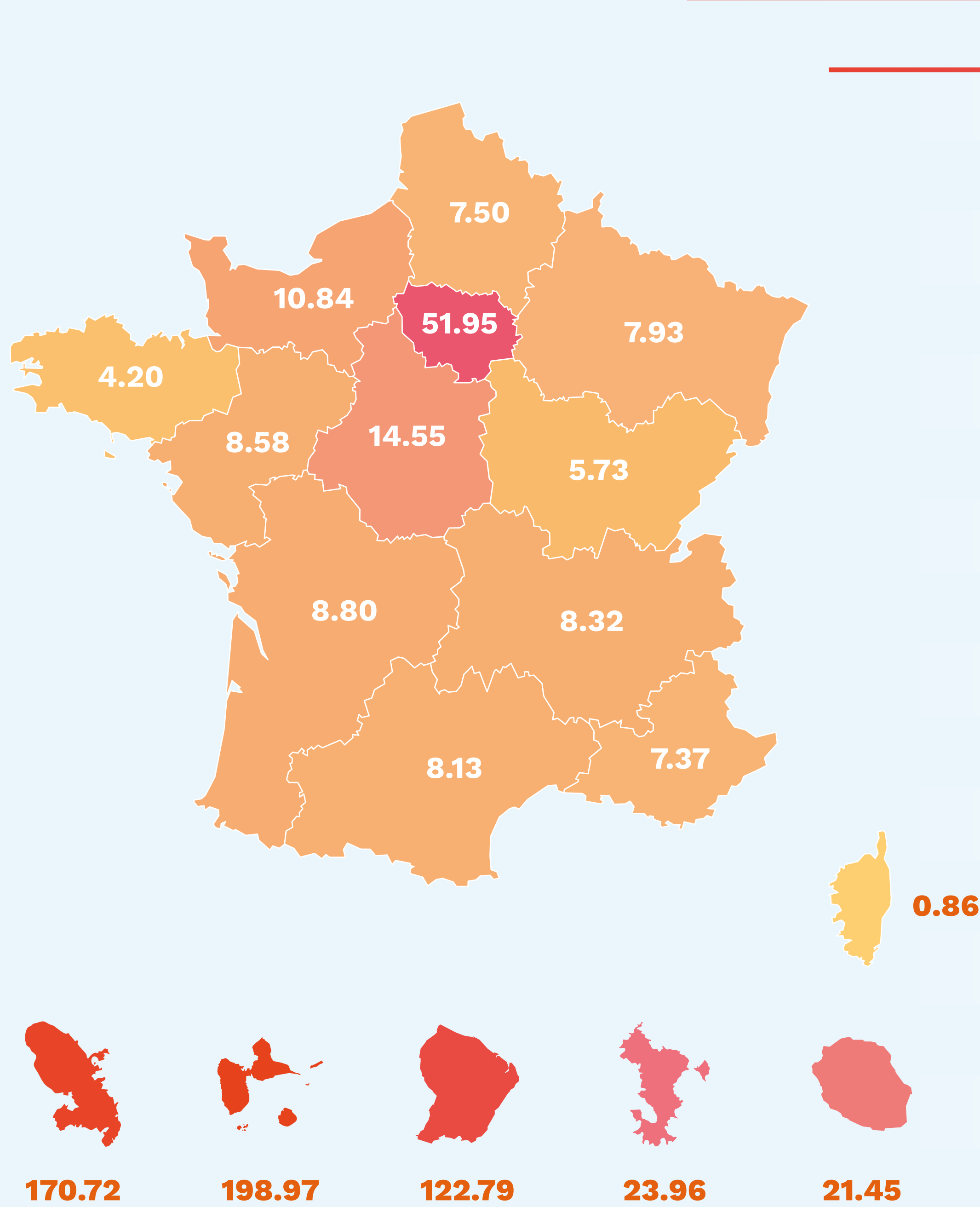


Table 1: SCD hospitalizations according to age

	Mean nb of hospitalizations per patient	Nb of hospitalizations	% of stays	Nb of patients	% of patients
Under 10 years	3.05	10,627	27.6%	3,489	26.7%
10 - 16 years	3.45	7,004	18.2%	2,031	15.6%
17 - 25 years	3.33	7,455	19.3%	2,241	17.2%
26 - 39 years	2.78	8,469	22.0%	3,044	23.3%
Over 40 years	2.22	4,995	13.0%	2,254	17.3%
TOTAL	2.95	38,550	100.0%	13,059	100.0%

Results

In 2016, in France, 38,550 SCD stays for 13,059 patients (2.95 hospitalizations by patient and year in average) were included with a mean age of 23.4 years. The young patients, under 16 years, represented 42.3% of our cohort, and this subgroup was more hospitalized than older patients (3.21 vs. 2.84). Cf. Table 1

Among patients, 5.6% received only BT, 38.4% developed a VOC, and 10.8% had both.

The situation was more complex at regional level with more than one in two patients hospitalized in “île de France” region, compared to the others for which proportion of hospitalized patients fluctuated between 1.0 to 5.1%. The French 5 overseas departments collectively managed 15.9% of these patients. The population treated in “île de France” was younger compared to other regions, with a mean age

of 22.0 years (SD± 16.8 years). In the 5 overseas departments the mean age was 28.0 years (SD± 20.4 years).

The standardized rate of hospitalizations was higher in overseas departments compared to the other regions in France, respectively 97.80 vs 16.98 per 100,000 inhabitants. Variations were also shown in Metropolitan France, with a higher standardized rate in “île de France” compared to the other regions, respectively 51.95 vs 0.86 to 14.55 per 100,000 inhabitants.

As regards BT and VOC, proportion of patients with both events were quite different between Metropolitan France and 5 overseas departments, respectively 11.7% vs 5.8%, whereas proportion of patients experiencing a VOC (38.4% vs 38.8%) or receiving BT (5.8% vs 4.5%) were quite similar.

1 https://www.insee.fr/fr/statistiques/2012716#tableau-TCRD_010_tab1_regions2016

