



# Epidemiology and Burden of Sickle Cell Disease in France: Real-Life Analysis using Data from the *Echantillon Généraliste des Bénéficiaires* (EGB)

RWD73

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## INTRODUCTION

Sickle cell disease (SCD) is a genetic disease impacting **≈300,000 newborns annually**, worldwide

SCD main treatment for vaso-occlusive crises prevention is **hydroxycarbamide (HC)**. Currently, allogenic stem cell transplantation (HSCT) is the only curative treatment, but only few patients are eligible

French **real-life data** on SCD are scarce and its public health impact seems underestimated

**Objectives: To describe SCD epidemiology and economic burden using data from the French *échantillon généraliste des bénéficiaires* (EGB)**

## METHODS

**Observational, longitudinal, retrospective, real-world study based on claims data from EGB**

**Epidemiology:** patients with SCD aged **≥12 years between 2011 and 2018**. Patients with sickle-cell trait were excluded.

**Economic burden:** Subgroup of patients between **2016 and 2018**

Historical period: **1 year** prior to index date

Follow-up: **≥6 months and up to 3 years** after index date

Index date: **January 1<sup>st</sup> 2016** or first date among **hospitalization, Long duration disease (LDD)\* or SCD-related treatment**

**Extrapolation** to the overall French population based on demographic data from French national statistics institute (INSEE)

## DATA

*Echantillon Généraliste des Bénéficiaires* (EGB)

**1/97<sup>th</sup>** representative sample of French population in terms of age, gender and geographical distribution

EGB gathers data from more than **700,000 individuals** covered by a health insurance scheme

## CODES

**Algorithms and codes for disease identification**

SCD : **≥1 hospitalization or LDD\*** with ICD-10 code **D57 Sickle-cell disorders and/or** **≥1 dispensation of HC**

\*LDD is an administrative status for chronic disease granting full coverage

Sickle-cell trait: ICD-10 code **D57.3 Sickle-cell trait**

## CONTROLS

**For economic burden assessment, SCD patients were matched to controls from general population using a 1:3 ratio**

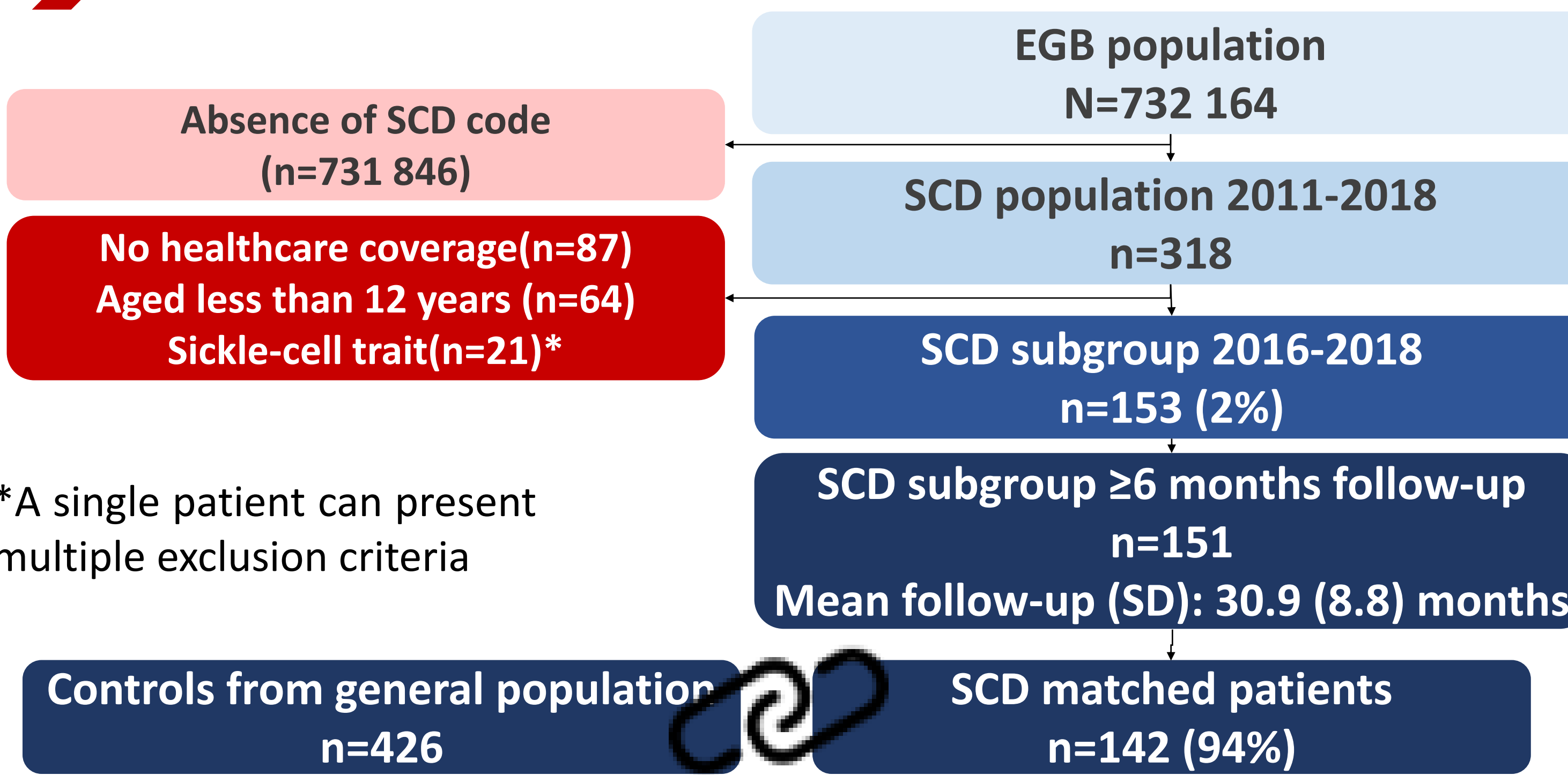


**Matching variables:** age, gender, CMUc status and geographical region of residence

**Control censoring:** controls were censored at the time of patient death if applicable

## RESULTS

**Almost 20,000 patients with SCD aged ≥12 years in 2018, constantly increasing by ≈10% each year since 2011**



\*A single patient can present multiple exclusion criteria

Figure 1: Patient flowchart and control matching

Table 1: Characteristics of SCD population with ≥6 months of follow-up (n=151)

Age – years, mean [95% CI]	37.6 [34.8 ; 40.3]
[12 - 20[ years ; [20 - 40[ years ; ≥40 years (%)	16.6% ; 41.1% ; 42.4%
Sex-ratio (% women)	0.4 (69.5%)
% patients treated with HC	11.9%
Hospitalization rate per 100 patient-year [95% CI]	12.9 [9.2 ; 17.6]

**Main differences between SCD patients and general population in healthcare resource use (HCRU) are mostly due to hospital care (visits, hospitalization, emergency room, ICU)**

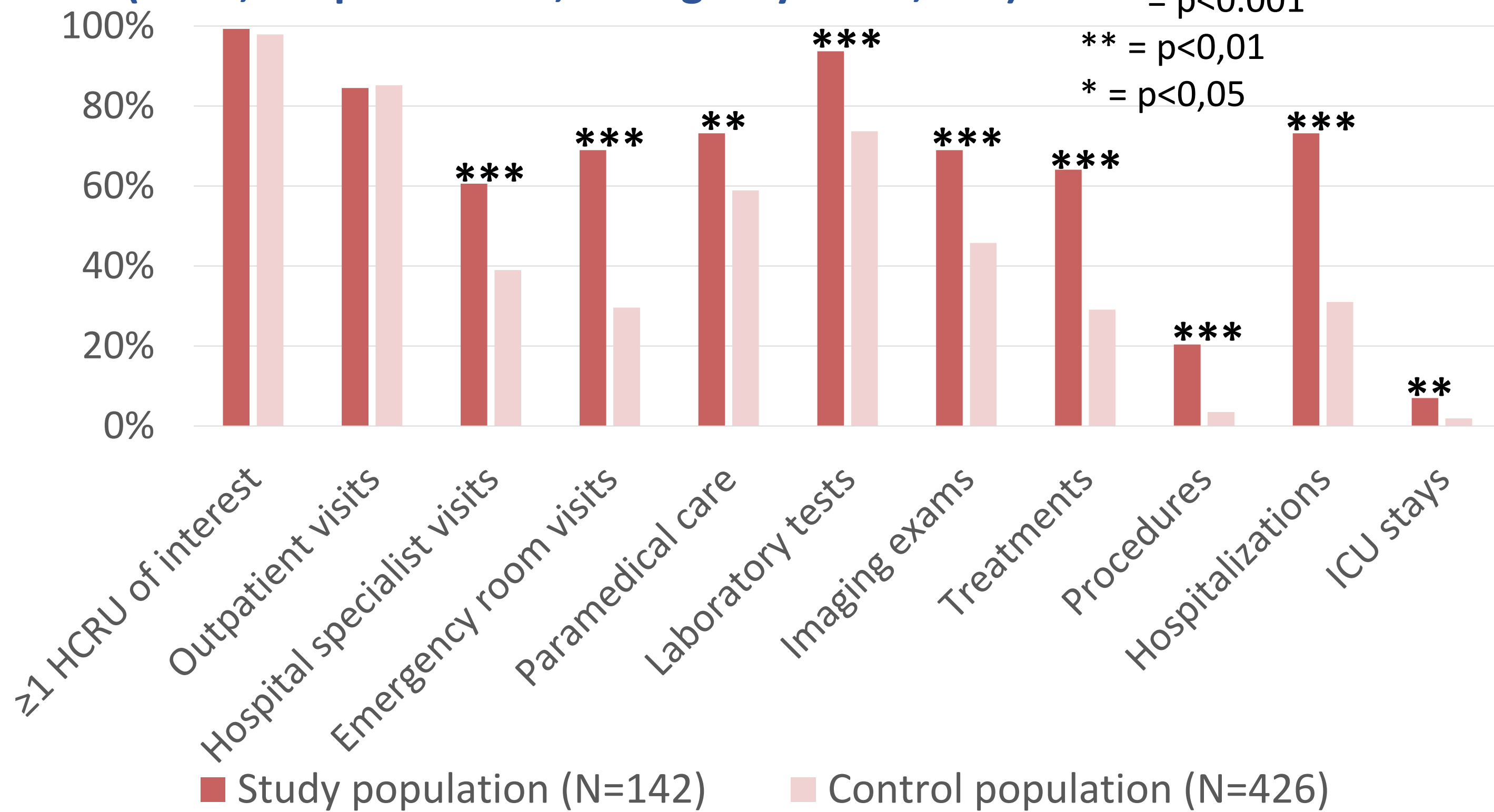


Figure 4: Proportion of patients/controls with ≥1 healthcare resource use (HCRU) per type

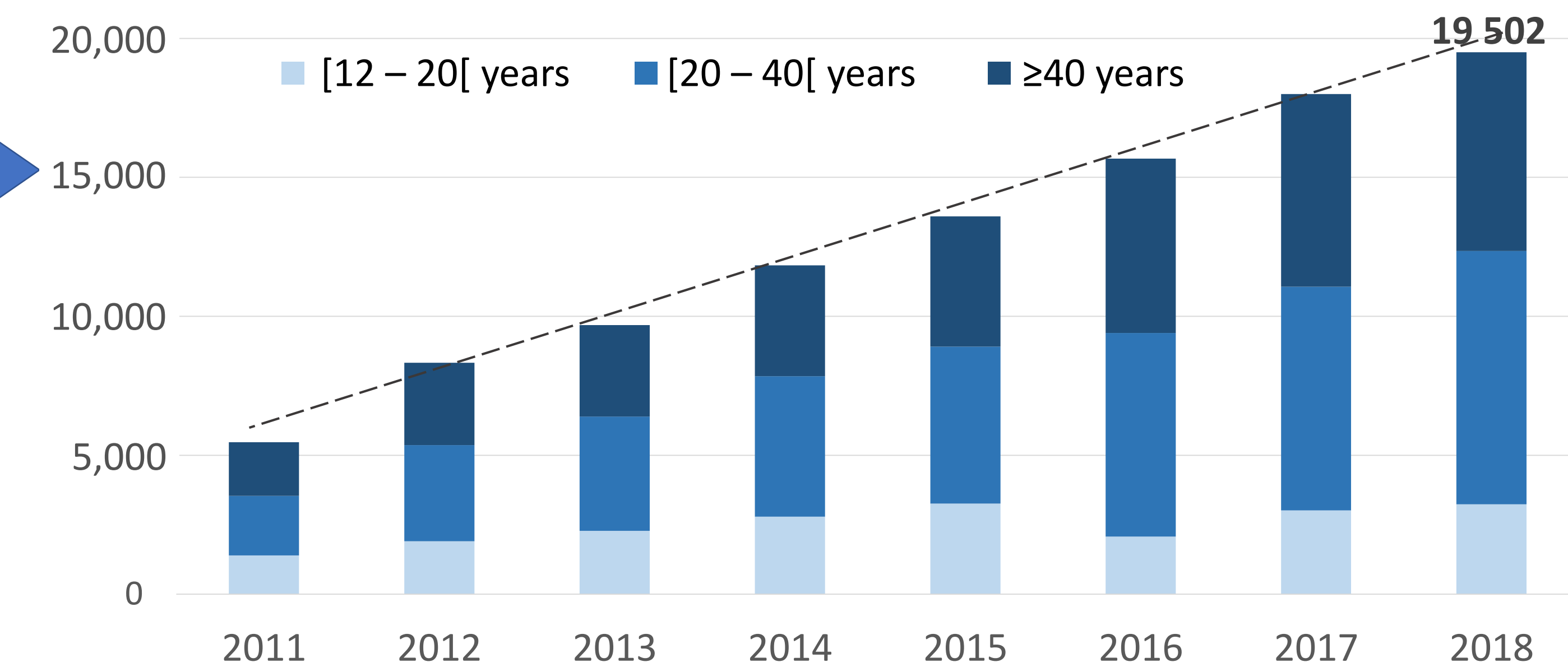


Figure 2: Annual prevalence of SCD in France between 2011 and 2018 – EGB data extrapolation

**A mean annual overcost of around 7,500€ was observed, corresponding to a 8-fold increase when compared to general population. More than 88% was represented by hospital costs.**

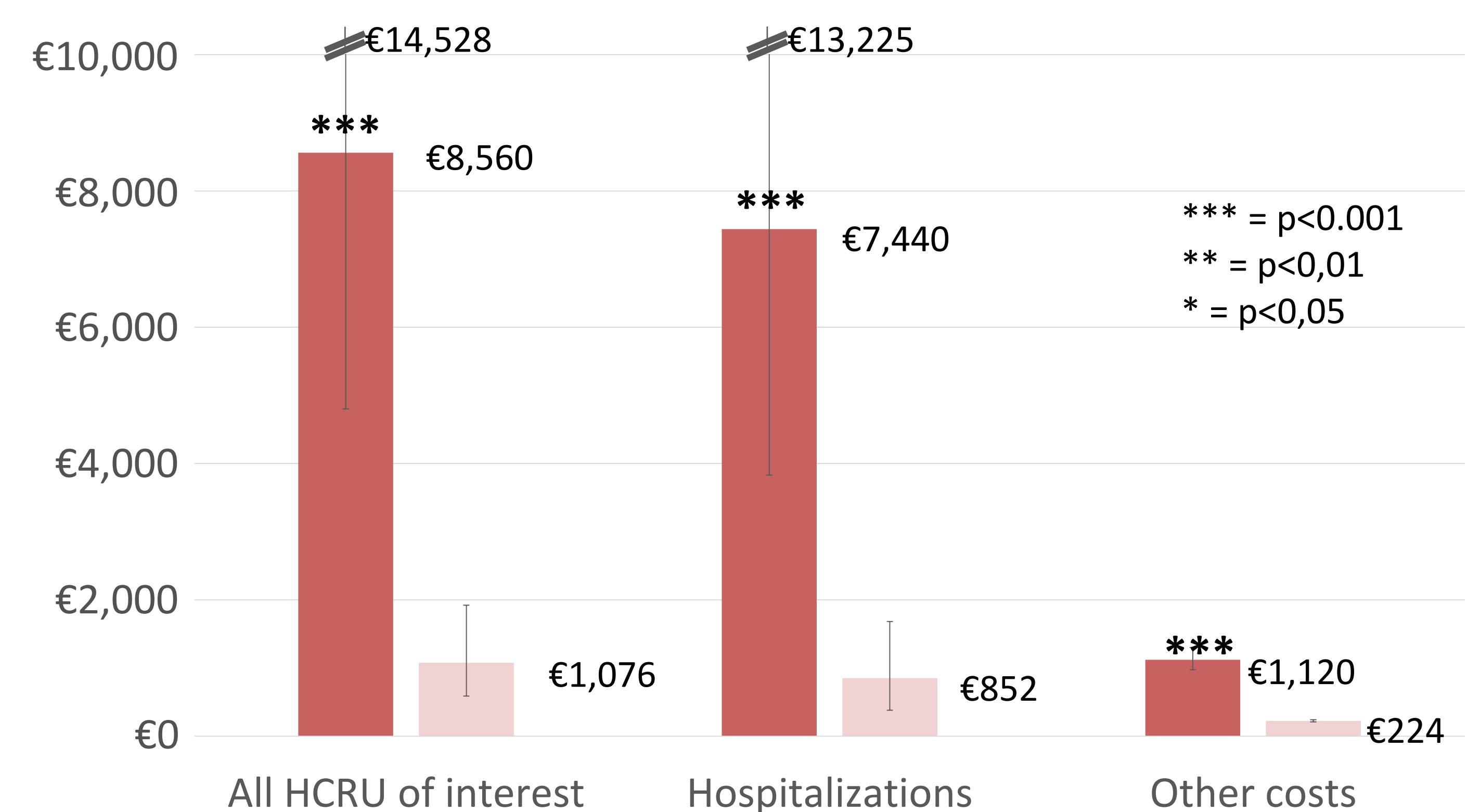


Figure 3: Mean annual costs per cost item among SCD patients and controls

**When extrapolated to the expected SCD population in France in 2018 (n=19,502), mean annual overcost of SCD patients aged ≥12 years is estimated to be around **€146,000,000** when compared to general population**



## CONCLUSION

**≈20 000 SCD patients aged ≥12 years in 2018, with a steady increase of around 10% each year since 2011.**

**An important overcost exists when compared to general population. It is almost exclusively due to hospitalizations.**

**As HC is indicated for vaso-occlusive crises prevention, and with only few HSCT performed, a medical need persists in SCD chronic management.**