

WHAT IS THE HOSPITAL ECONOMIC BURDEN
OF HIV IN FRANCE?
Results from an analysis of the national French medical information
system database



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INTRODUCTION

HIV (*Human Immunodeficiency Virus*) infection has become a chronic disease in developed countries. To date, there are few recent data on the HIV hospital burden involved in caring for HIV and its complications. The objective of this study is to **estimate the economic burden of hospital admissions related to HIV infection in France**, using PMSI (*French Medical Information System*) data from 2013/2014.

METHODS

STUDY PERIOD

January 1st, 2013 –December 31st, 2014

DATABASE

PMSI (*French Medical Information System*)

DATA EXTRACTION

All hospital stays recorded in 2013, containing at least one of the following ICD-10 (*International Classification of Diseases*) codes as the Main Diagnosis (*MD*), Related Diagnosis (*RD*) or Significant Associated Diagnosis (*SAD*) were extracted:

- **B20***: Human immunodeficiency virus [HIV] disease resulting in infectious and parasitic diseases
- **B21***: Human immunodeficiency virus [HIV] disease resulting in malignant neoplasms
- **B22***: Human immunodeficiency virus [HIV] disease resulting in other specified diseases
- **B23***: Human immunodeficiency virus [HIV] disease resulting in other conditions
- **B24***: Unspecified human immunodeficiency virus [HIV] disease

HOSPITAL STAYS SELECTION

Through an algorithm combined with medical interpretation, hospital stays unrelated to HIV were excluded, and stays for HIV-related care were identified and classified:

- All stays with B20*-B24* codes as MD/RD were automatically included, and classified as directly associated to VIH;
- Stays with B20*-B24* codes as SAD were included after a medical review by HIV clinician experts; based on this review, they were classified as directly associated with HIV or probably associated with HIV.

Hospital stays directly related to HIV constituted the low hypothesis (*LH*); the combined set of stays directly or probably related to HIV constituted the high hypothesis (*HH*).

FOLLOW-UP OF PATIENTS DURING 1 YEAR

Hospital stays for each patient admitted in 2013 were extracted for 12 months (e.g. *March 2013 - February 2014*). The same algorithm and medical review were conducted on these additional stays, in order to exclude stays not related to HIV, and to sort selected stays into both hypotheses.

In the analysis presented below, outpatient visits (*day hospital: < 1 day*) were excluded, in order to retain inpatient stays only.

IDENTIFICATION OF OPPORTUNISTIC INFECTIONS

Within the selected HIV stays, ICD-10 codes were reviewed by HIV clinician experts in order to identify diseases associated with HIV, with a focus on opportunistic infections (*OI*).

ANALYSIS OF ASSOCIATED COSTS

Valuation of each stay was performed based on official tariffs applicable in France in 2013 and 2014, expressed in 2016 Euro.

The total annual cost of hospital stays as well as the median annual cost per patient were calculated.

RESULTS

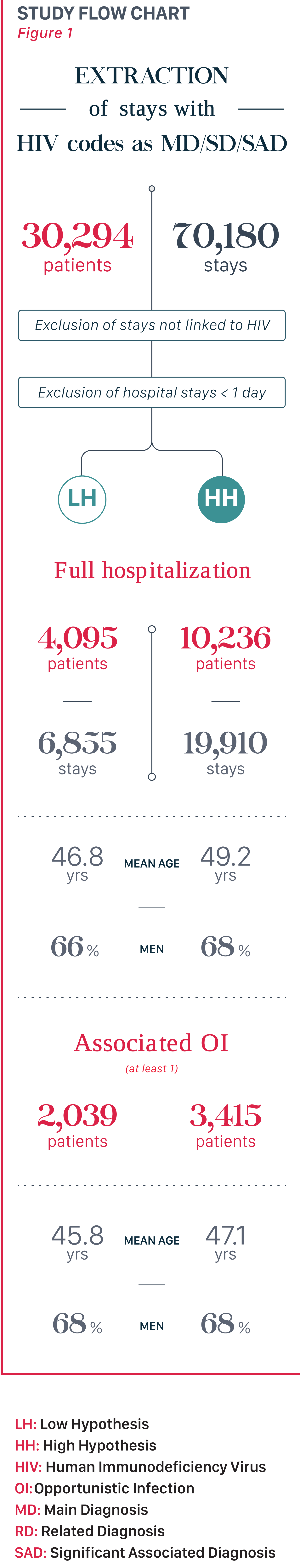
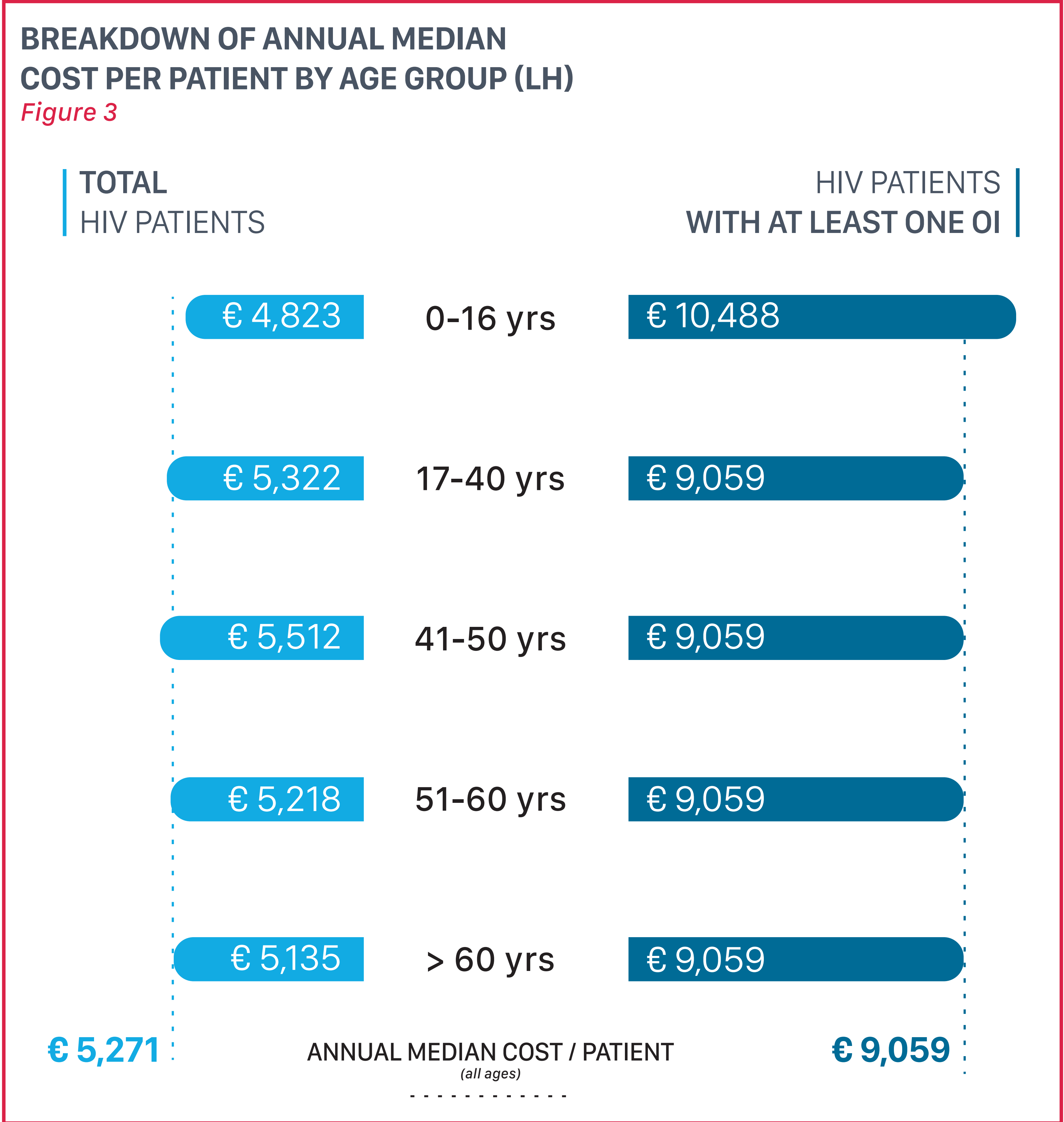
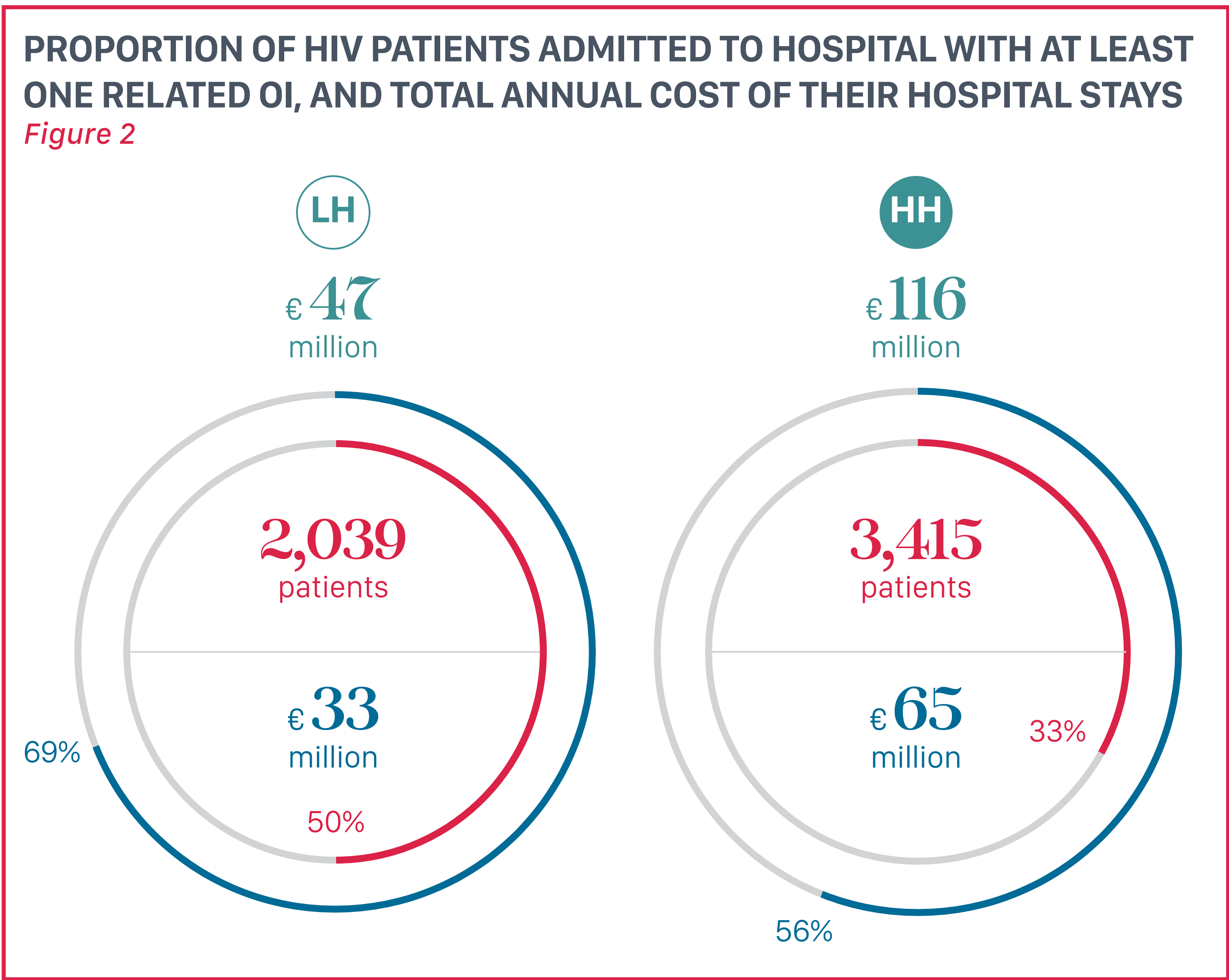
LH - LOW HYPOTHESIS

4,095 patients had at least one inpatient hospital admission for HIV-related care in 2013-2014 (*figure 1*), for a total yearly cost of approximately **€47 million**, with a per-patient median annual cost of **€5,271** [€387–186,925]. Of these patients, **50%** (2,039) had at least one related OI, representing **69% of the total annual cost** (€33 million) (*figure 2*), for a per-patient median annual cost of **€9,059** [€500–186,925].

HH - HIGH HYPOTHESIS

10,236 patients had at least one inpatient hospital admission for HIV-related care in 2013-2014 (*figure 1*), for a total yearly cost of approximately **€116 million**, with a per-patient median annual cost of **€5,226** [€346–422,826]. Of these patients, **33%** (3,415) had at least one related OI, representing **56% of the total annual cost** (€65 million) (*figure 2*), for a per-patient median annual cost of **€11,135** [€346–422,826].

The **per-patient annual median cost** **did not differ with age**, neither for the total HIV population admitted to hospital, nor for those with at least one OI (*figure 3*). The breakdown of this cost by age group was similar for both hypotheses.



DISCUSSION / CONCLUSIONS

In 2013-2014, **4,095 patients** had at least one inpatient admission for care directly related to HIV, representing a total cost of **€47 million**. Half of them had at least 1 opportunistic infection during this follow-up period, representing over **2/3 of the total cost** of hospital admissions directly related to HIV.

The economic burden of HIV is certainly **underestimated here**, given that the PMSI database contains only hospital stays. Therefore, OIs directly treated outside the hospital sector and the external follow-up of patients are not captured by PMSI, nor their cost taken into account.

Earlier detection of HIV infection through the availability of self-administered tests, and prevention of opportunistic infections, will allow better management of HIV infection, and a reduction in associated hospital admissions and costs.

