

BONE AND JOINT INFECTIONS (BJI) SINCE LABELLING OF COMPLEX BJI REFERENCE CENTRES IN FRANCE: BEFORE/AFTER STUDY

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Introduction

- BJI are associated with morbidity and high economic impact
- First BJI national study through French Hospital Discharge Database (HDD) in 2008:
 - validation of a BJI case definition
 - 1st prevalence estimation: 54/100,000 inhabitants¹
- Labelling of French Reference Centres (FRC) for adult Complex BJI (CBI) from 2008 onwards

Objectives

- Epidemiologic and medico-economic evolution of BJI between 2008 and 2013
- Focus on CBI in 2013

Methods

- Extraction of BJI stays of patients ≥15 from French national HDD
- Identification of native and device-associated BJI (DBJI) with the validated algorithm using specific:
 - ICM-10 diagnosis codes
 - surgical procedure codes according to the French Common Classification of Medical Acts¹
- CBI Identification: Z76800 code:
 - created in 2011
 - coded after a multidisciplinary consultation in FRC
- Stay HD → patient HD (linkage with the unique and encrypted patient number)

➤ **BJI Prevalence between 2008 and 2013, from 54/100,000 to 70/100,000 inhabitants (37,252 inpatients)**

Table Evolution of BJI and DBJI hospitalisations 2008-2013, CBI hospitalisations 2013, France

	Overall BJI		Device-associated BJI		Complex BJI	
	2008	2013	2008	2013	2013	
	N	%	N	%	N	%
Hospital stays	36,097	43	48,386	57	11,451	32**
Public sector hospitalization	28,441	78.8	39,797	82.2	7,923	69.2
FRC hospitalization	11,170	30.9	15,888	32.8	3,448	30.1
Surgical stay wards	19,847	55.0	27,308	56.4	8,513	74.3
Resuscitation/ICU stays*	2,106	5.8	3,350	6.9	624	5.4
Z76800 code (2013 only)	-	-	3,301	6.8	-	-
Device-associated BJI	11,451	31.7	16,214	33.5	-	-
Microorganisms	14,407	39.9	30,833	63.7	4,708	41.1
Bacteria	14,071	97.7	30,311	98.3	4,668	99.2
Polybacteria	1,591	11.0	6,116	19.8	502	10.7
Staphylococci	9,425	65.4	20,837	67.6	3,570	75.8
Streptococci	2,208	15.3	5,678	18.4	687	14.6
Gram negative Bacilli	2,370	16.5	8,104	26.3	788	16.7
Resistance	485	3.4	7,974	25.9	183	3.9
LOS (days), mean	17.5		17.5		18.9	18.2
(median [min-max])	(11 [1-421])		(12 [1-442])		(13 [1-421])	(13 [1-442])

* Intensive Care Unit

** % overall BJI

BJI (Table)

➤ **Similarities 2008-2013:**

- Type: 50% septic arthritis, 37% osteomyelitis, 10% spondylodiscitis
- prevalence with age and sex (SR M/F 1.5) (Fig. I)
- 1 comorbidity or more for 2/3 of inpatients (cardiac disease, diabetes, Fig. II)
- Hospital case-fatality rate 5%
- Rehospitalisations 20%
- Mean length of stay (LOS) 17.5 days

➤ **Differences 2008-2013:**

- coded microorganisms: 40 to 64%
- costs (Fig. III)

DBJI (Table)

➤ 34% of BJI, stable

➤ Microorganisms: *Staphylococci* 77%

➤ Differences 2008-2013:

- hospitalisations in public sector
- costs (Fig. III)
- mean LOS from 18.9 to 18.2 days (p<0,01)

Results

Figure I All BJI / DBJI Prevalence, France, 2008-2013

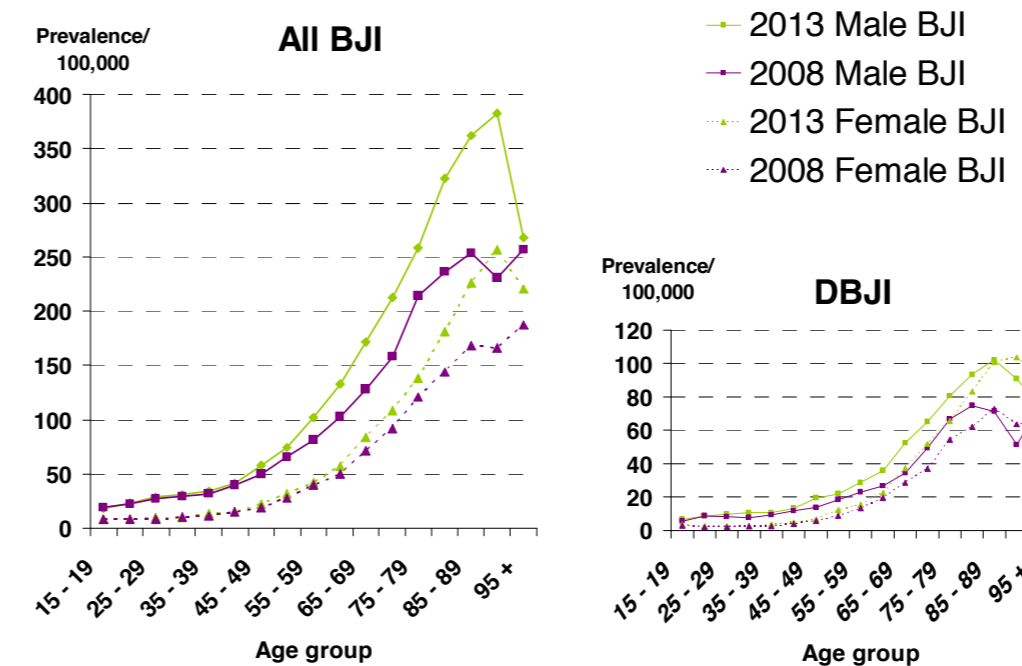


Figure II BJI Comorbidities, France, 2008-2013

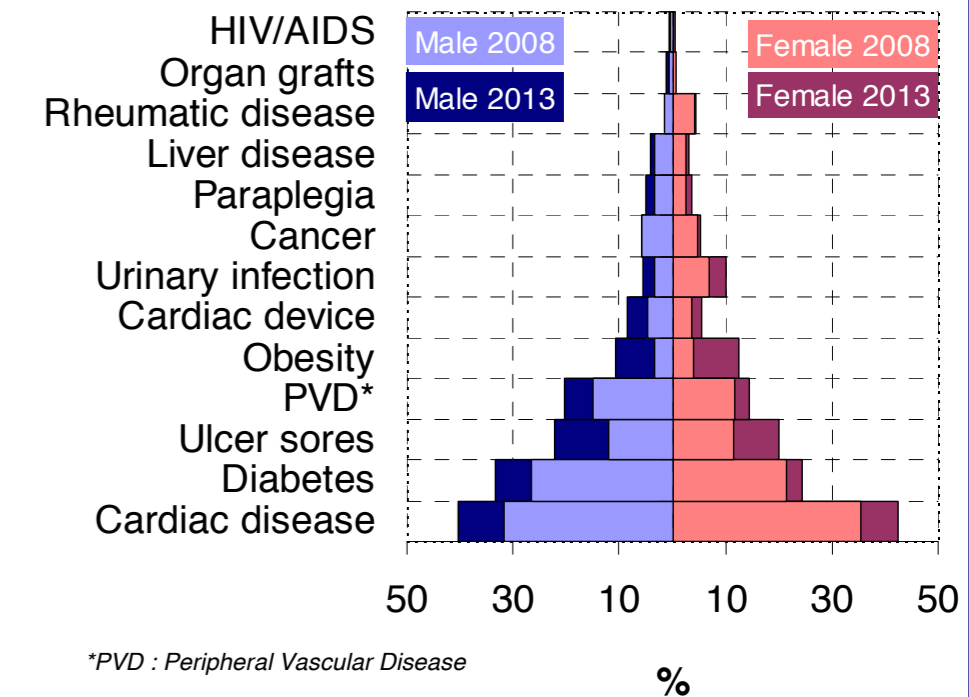
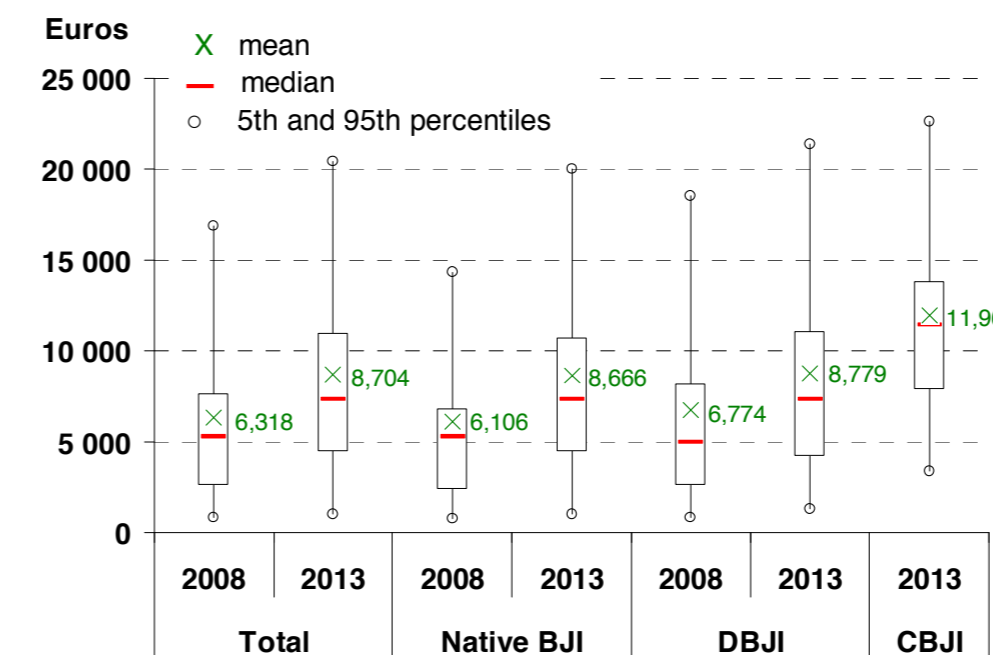


Figure III BJI costs (euros), France, 2008-2013



CBI (Table)

- Z76800 code sparsely used: 7% of hospital stays
 - More used in DBJI (12.5%) than in native BJI (3.5%).
 - Used in 20% of BJI stays and 34% of DBJI stays in FRC.

Discussion

- Increasing prevalence of BJI and DBJI.
- DBJI more frequent in men, elderly people, with comorbidities, as in 2008.
- Increasing prevalence could be due to:
 - Better knowledge + financial incentive since the labelling of FRC.
 - An ageing population with more comorbidities, undergoing more arthroplasties.
 - A global activity increase.
- Estimation of CBI prevalence, required for FRC monitoring, complicated by:
 - the absence of clinical consensus about CBI definition.
 - An underuse of the Z76800 code, recently created and needing a multidisciplinary consultation.
- Could CBI epidemiology be approached by the study of DBJI?

¹ Grammatico-Guillon L. et al. Bone and joint infections in hospitalized patients in France, 2008: clinical and economic outcomes. *J. Hosp. Infect.* 82, 40-48 (2012)