

## Introduction

Enterococci are part of normal human microbial flora. They are known as low virulent compared to numerous bacteria but although well recognized in several bacterial infections [1].

Enterococci are innately resistant to cephalosporin and aminoglycosides which are often used in health-care associated infections [2].

Inappropriate antibiotic therapy is an independent risk factor for mortality in enterococcal bacteraemia [3].

The influence of appropriate antimicrobial therapy in enterococcal bacteraemia has not been fully settled.

## Objective

To evaluate the impact of an appropriate antimicrobial therapy in enterococcal bacteraemia on the patients outcomes.

## Methods

**Design** : retrospective multicenter cohort study in 13 institutions in the South of France, between 1<sup>st</sup> January and 31<sup>th</sup> December 2016.

**Data** : we identified *Enterococcus spp.* monobacteraemia (positive blood cultures) from the laboratory's database.

We collected demographic and clinical data, antimicrobial treatment and patient's outcome.

**Primary outcome** :

- Effective antimicrobial therapy : Amoxicillin, Amoxicillin-ac.clavulanique, Vancomycin, Gentamycin, Daptomycin, Linezolid, Piperacillin-tazobactam or carbapenem

- Appropriate antimicrobial therapy : Amoxicillin, Vancomycin, Daptomycin or Gentamycin.

**Unfavorable outcome** :

- in short term evolution was death or intensive care unit admission (composite endpoint)

- in long term evolution was relapse.

**Statistics** : we conducted descriptive and bivariate analysis using fisher's test or chi-square test where needed.

## Results

N = 131		(%)
<b>Sex</b>		
Man	101	77,1
Woman	30	22,9
<b>Age</b> (years-old) médiane [IQR]	76 [69-84]	
Charlson (Médiane [IQR])	3 [1-4]	
<b>Establishment</b>		
Teaching Hospital	49	37,4
General Hospital	21	16,0
Clinic	61	46,5

Table 1- Patients' characteristics

109 infections (83 %) were caused by *E. faecalis* and 13 cases (10 %) were caused by *E. faecium*. 9 infections (7%) were caused by other *Enterococcus*.

### Empirical antibiotherapy :

Monotherapy : 10 lines, bithérapie : 19 lines

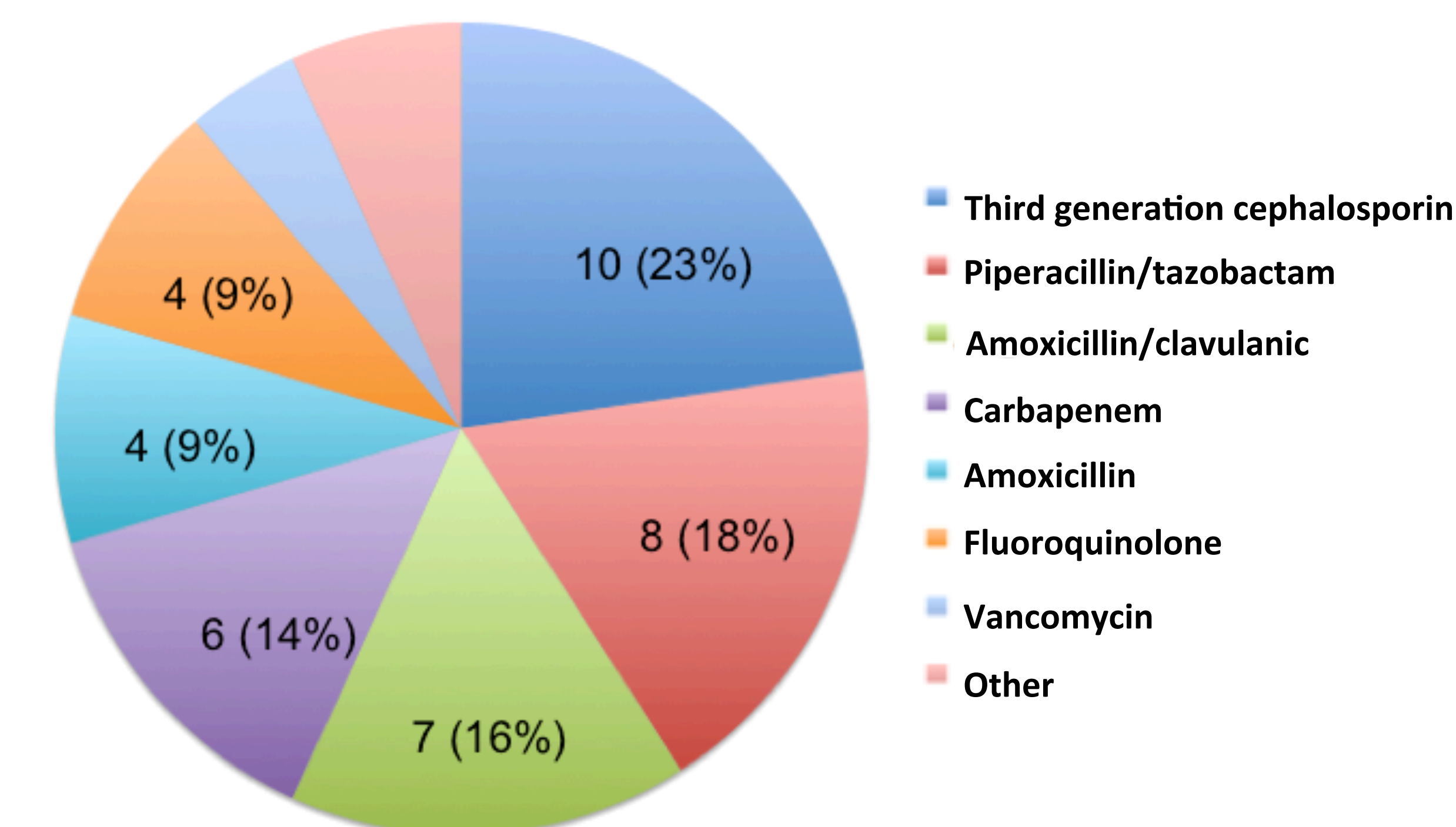


Figure 1 – Monotherapy probabilist antibiotherapy

44 (33,3%) have been considered as non effective and 65 (49%) as effective.

### Documented antibiotherapy (DA):

Non treated : 3, Monotherapy : 76, Bithérapie : 32

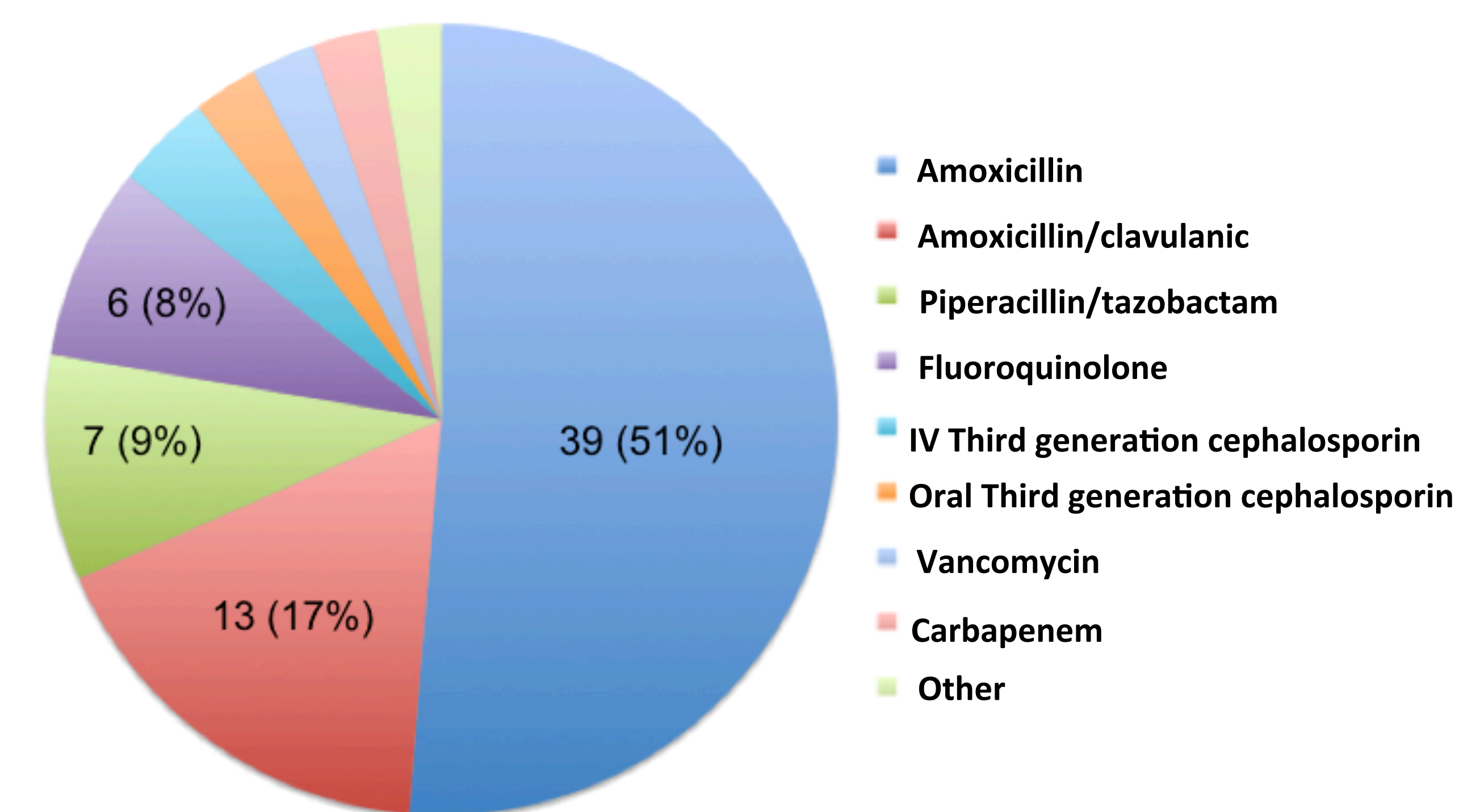


Figure 2 – Monotherapy documented antibiotherapy

94 (71,2%) received effective treatment and 17 (12,9%) non effective treatment. Of the 94 patients who received effective therapy, 63 (67,0%) were appropriate and 31 (33%) were non appropriate.

	N = 131 (%)		Community-onset infections		HCAI*		Unknown	
Urinary	59	(45,0)	13	(22,0)	27	(45,8)	19	(32,2)
Digestive	24	(18,3)	3	(12,5)	14	(58,3)	7	(29,2)
IV catheter	18	(13,7)	0	(0)	16	(88,9)	2	(11,1)
Unknown	15	(11,5)	3	(20)	8	(53,3)	4	(26,7)
Endocarditis	6	(4,6)	2	(33,3)	2	(33,3)	2	(33,3)
Orthopedic	3	(2,3)	0	(0)	0	(0)	3	(100)
Pulmonary	3	(2,3)	1	(33,3)	2	(66,7)	0	(0)
Urinary or pulmonary	2	(1,5)	1	(50)	1	(50)	0	(0)
Dental	1	(0,8)	1	(100)	0	(0)	0	(0)

\* HCAI = Healthcare associated infections

Table 2- Infections' localisations

### Outcome:

Short term evolution: death and intense care unit admission

**N = 27/131 (20,5%)**

Long term evolution: relapse

**N = 14/112 (12,5%)**

	Short term evolution				p-value
	Favorable N=	%	Unfavorable N=	%	
DA amoxicillin +	39	90,7	4	9,3	0,020
DA amoxicillin -	41	69,5	18	30,5	

	Relapse				p-value
	Yes N=	%	No N=	%	
DA amoxicillin +	8	21,6	29	78,4	0,132
DA amoxicillin -	5	12,8	34	87,2	

Table 3 - DA with amoxicillin and association with the evolution

## Conclusion

**Enterococcal bacteremia is associated with a high proportion of inappropriate empirical therapy. Not receiving amoxicillin as a documented treatment was associated with an unfavourable outcome.**

[1] S. J. McBride & A. Upton & S. A. Roberts . Clinical characteristics and outcomes of patients with vancomycin-susceptible *Enterococcus faecalis* and *Enterococcus faecium* bacteraemia—a five-year retrospective review

[2] M. Pinholt1,2, C. Østergaard1,2, M. Arpi1, and all. Incidence, clinical characteristics and 30-day mortality of enterococcal bacteraemia in Denmark 2006–2009: a population-based cohort study

[3] M. Suppli1, R. Aabenhus1, Z. B. Harboe1,4, L. P. Andersen2, M. Tvede1 and J.-U. S. Jensen1,3. Mortality in enterococcal bloodstream infections increases with inappropriate antimicrobial therapy