# Antibiotic resistance in the community

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- powers of Health to the governments of the autonomous communities
- absence of common databases
- nationwide prevalence studies

reipi RED ESPAÑOLA DE INVESTIGACIÓN EN PATOLOGÍA INFECCIOSA

Instituto de Salud Carlos III

Spanish Urinary Tract Infection Study Group

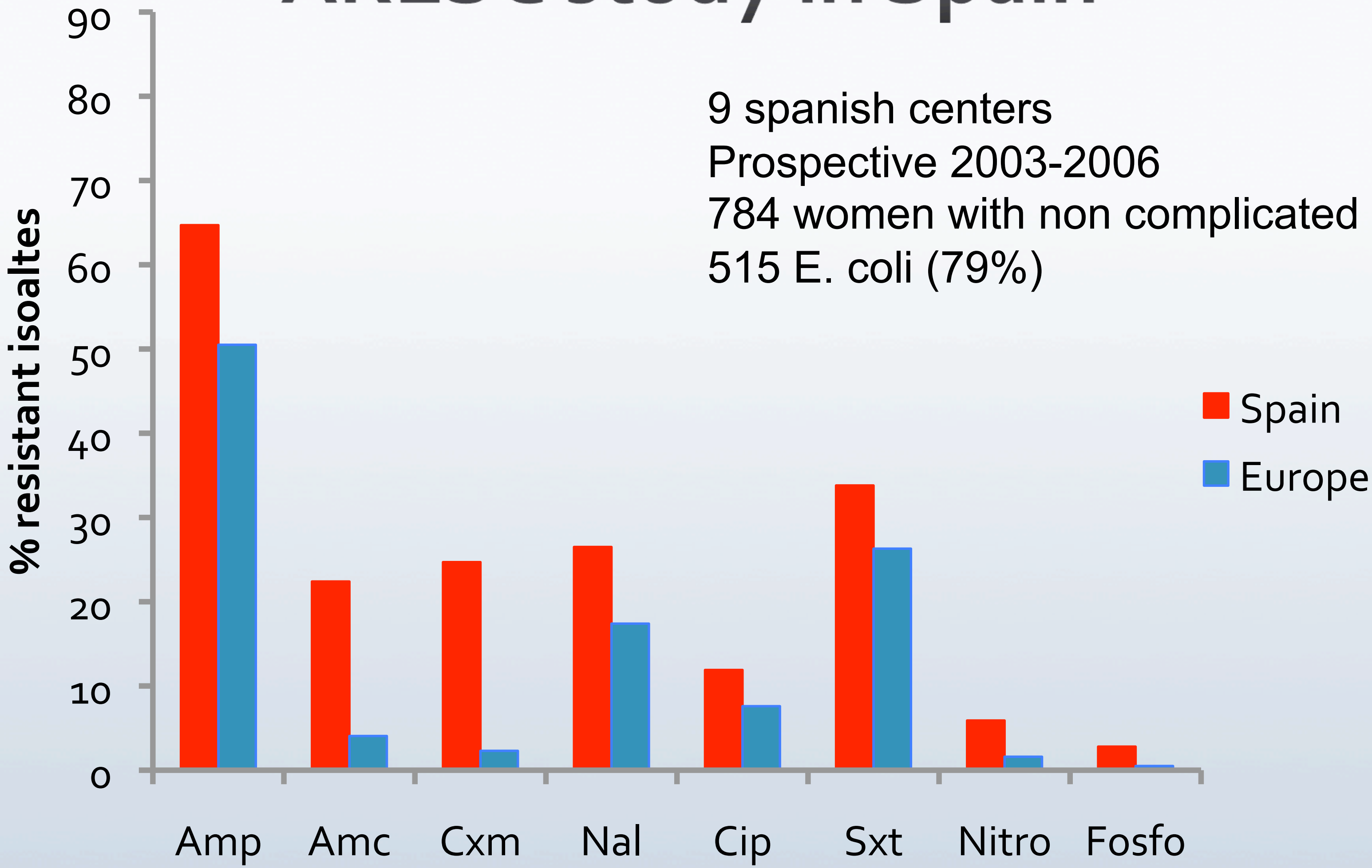
# Different breakpoints


60% CLSI

40% EUCAST

# ARESC study in Spain

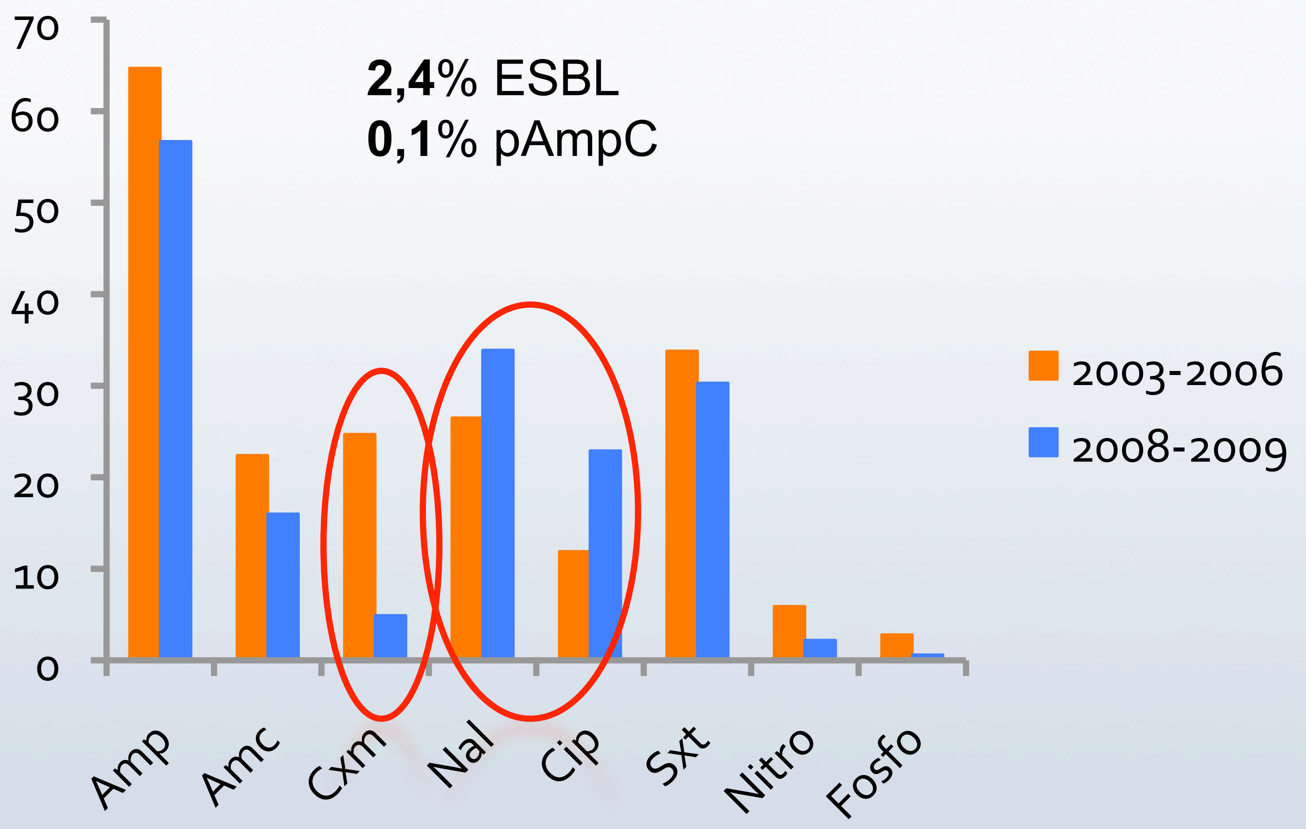
9 spanish centers
Prospective 2003-2006
784 women with non complicated ITU
515 E. coli (79%)




Naber et al. Eur Urology 2008
Palau et al. Med Clin (Barc) 2011

# Spanish Urinary Tract Infection Study Group (SUTIS)

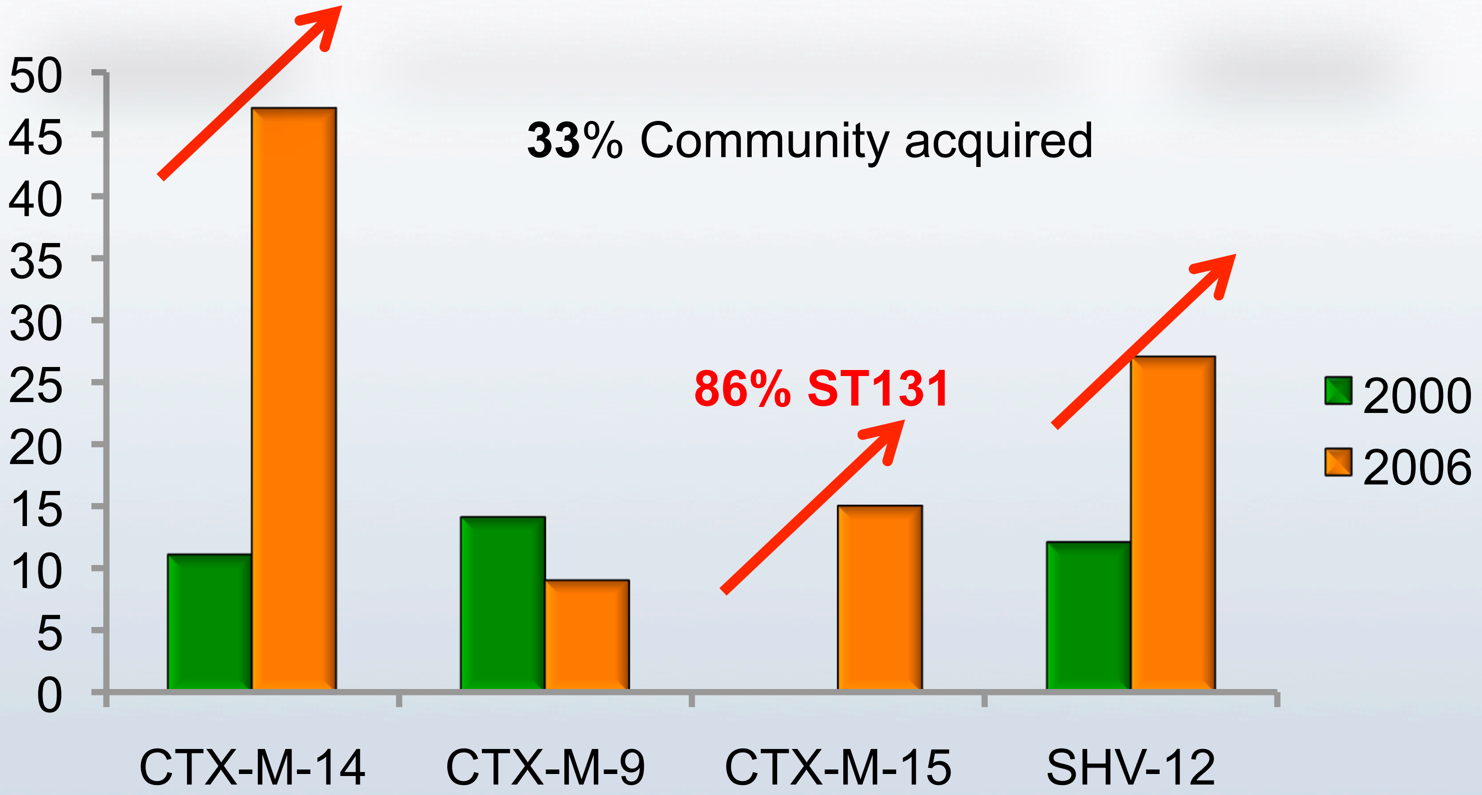
multicenter nationwide prospective study in 89 Spanish institutions
**2008-2009**




Palau et al. Med Clin (Barc) 2011
Cuevas et al. Diagn Microbiol Infect Dis 2010

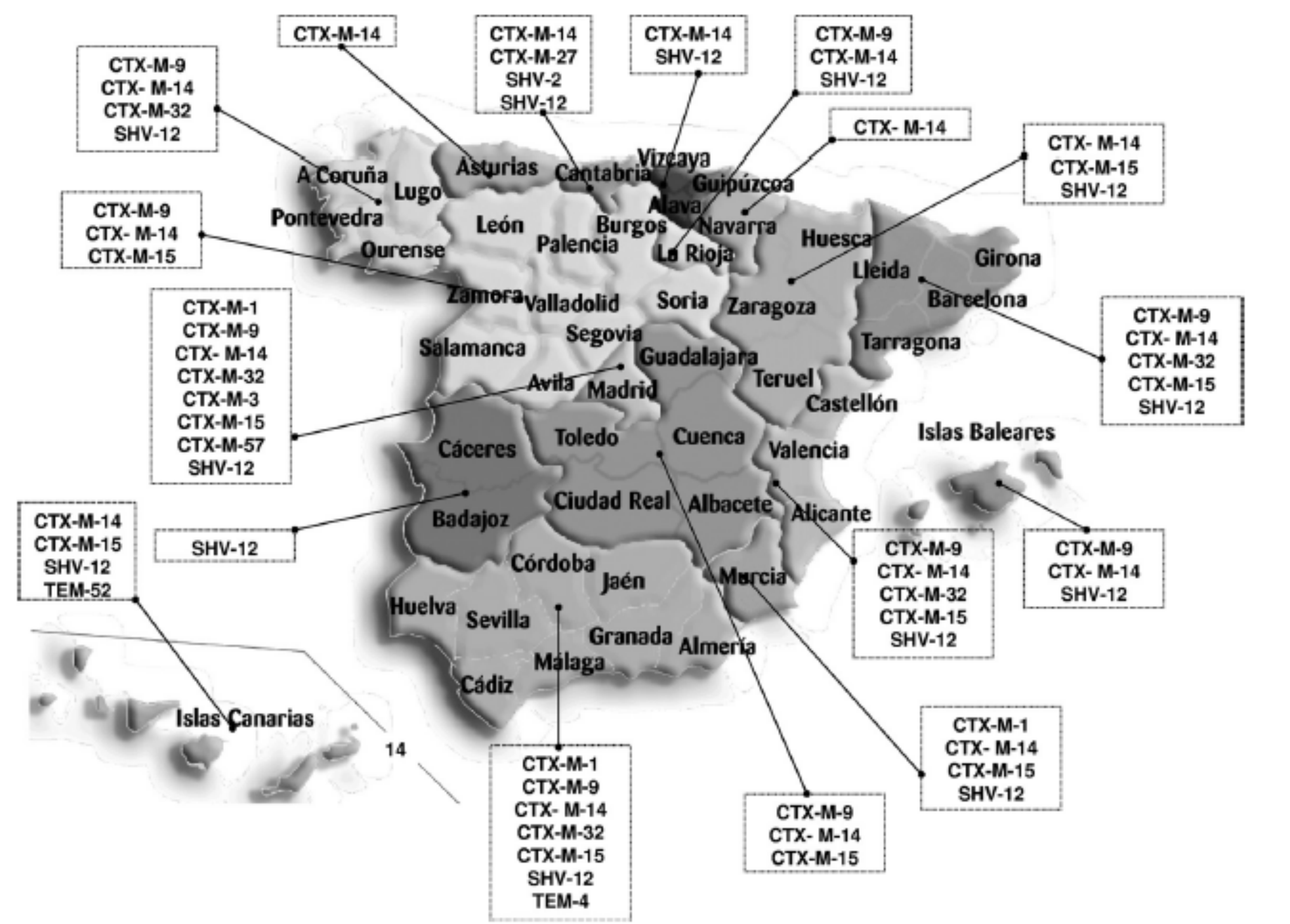
# ESBL: GEIH-BLEE projects

0,5% 2000 → 4% 2006




Hernández et al. Antimicrob Agents Chemother 2005
Díaz et al. J Clin Microbiol 2010

# ESBL: GEIH-BLEE projects

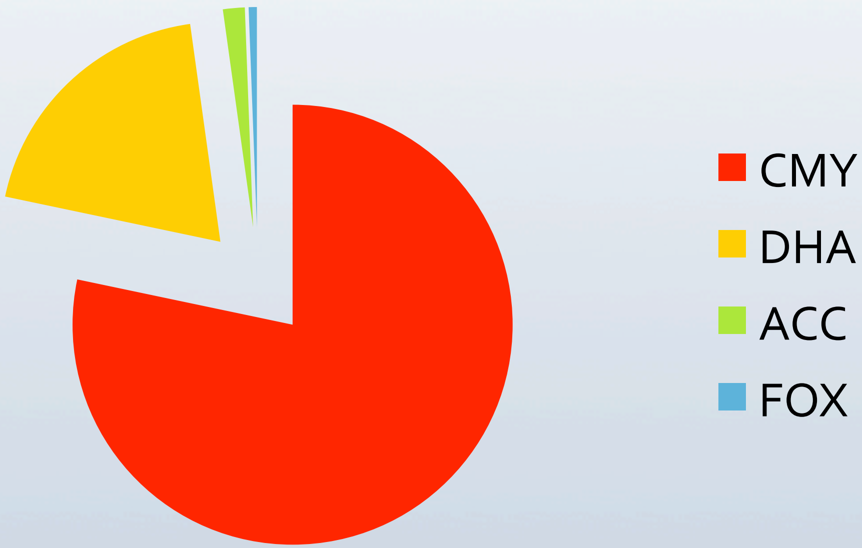



Díaz et al. J Clin Microbiol 2010

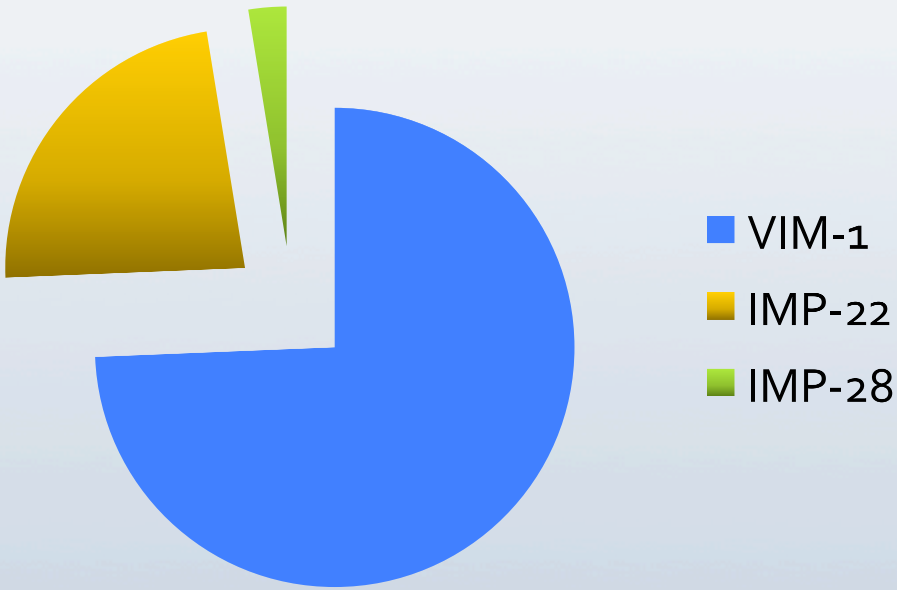
# pAmpC and carbapenemases

- 2009 100.132 islates from 35  hospitals
- **0,64%** pAmpC and **0,04%** carbapenemases

**pAmpC**




**carbapenemases**

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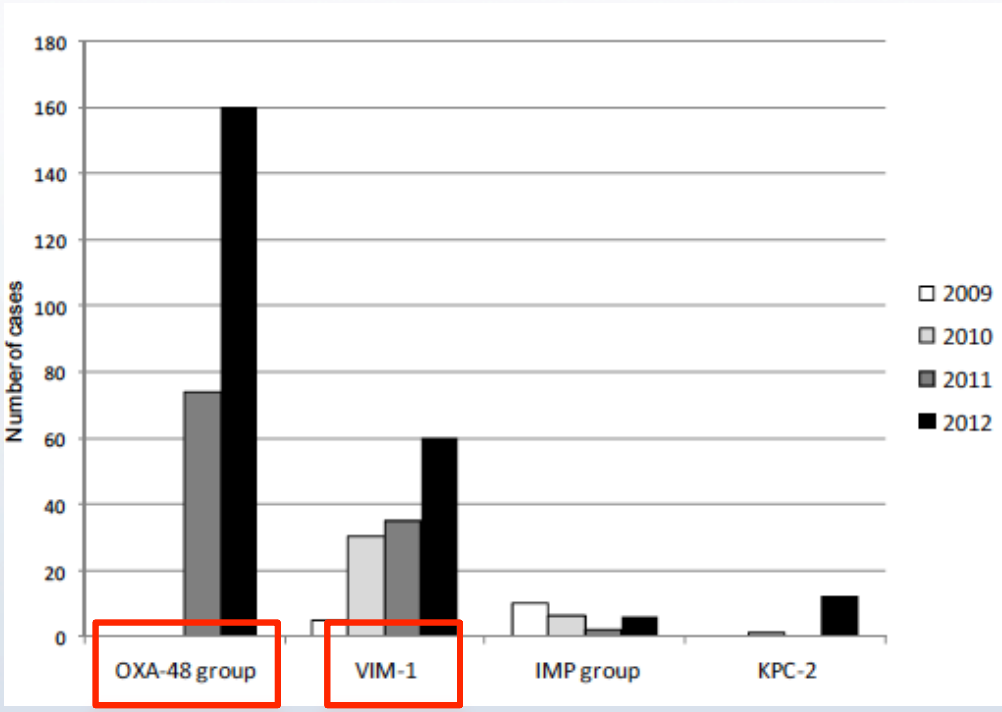
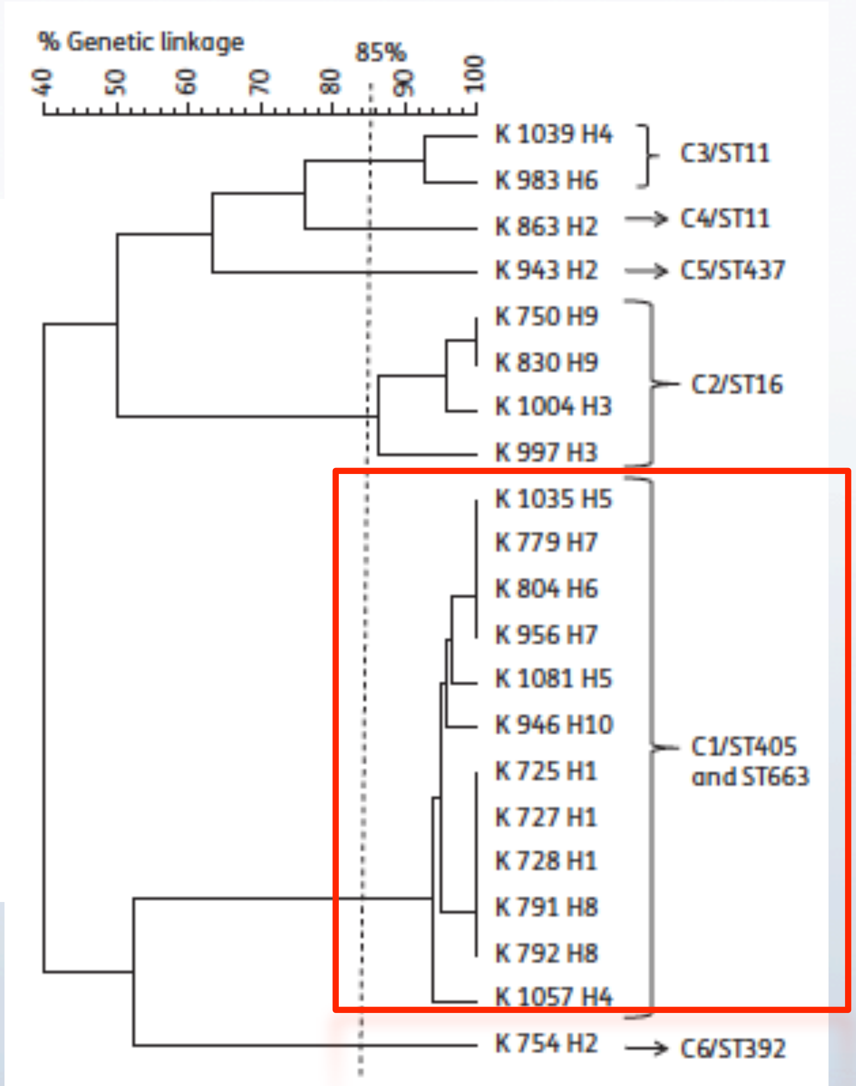
Miro et al. Eur J Clin Microbiol Infect Dis 2013

# OXA-48




ST11 + ST405

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Oteo et al. Antimicrob Agents Chemother 2013

Oteo et al. J Antimicrob Chemother 2012

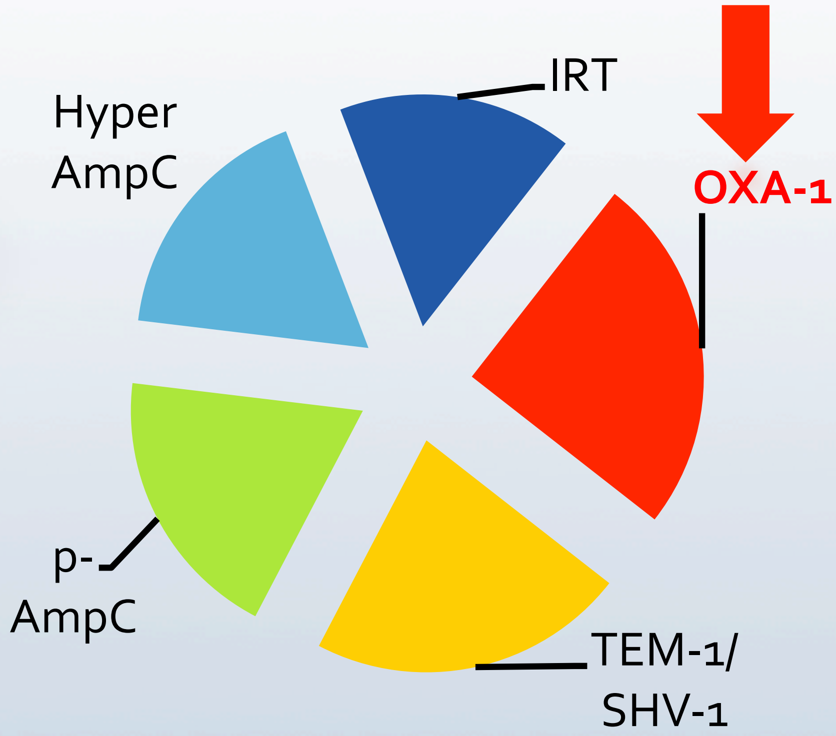
# AMC resistance

- ARESC study (2003-2006) 22%
- SUTIS (2008-2009) 16%
- EARSS.

9% 2003 → 26% 2010

prospective multicenter study (REIPI)

January 2010 and May 2010: **257** isolates




Oteo et al. Antimicrob Agents Chemotherapy 2012

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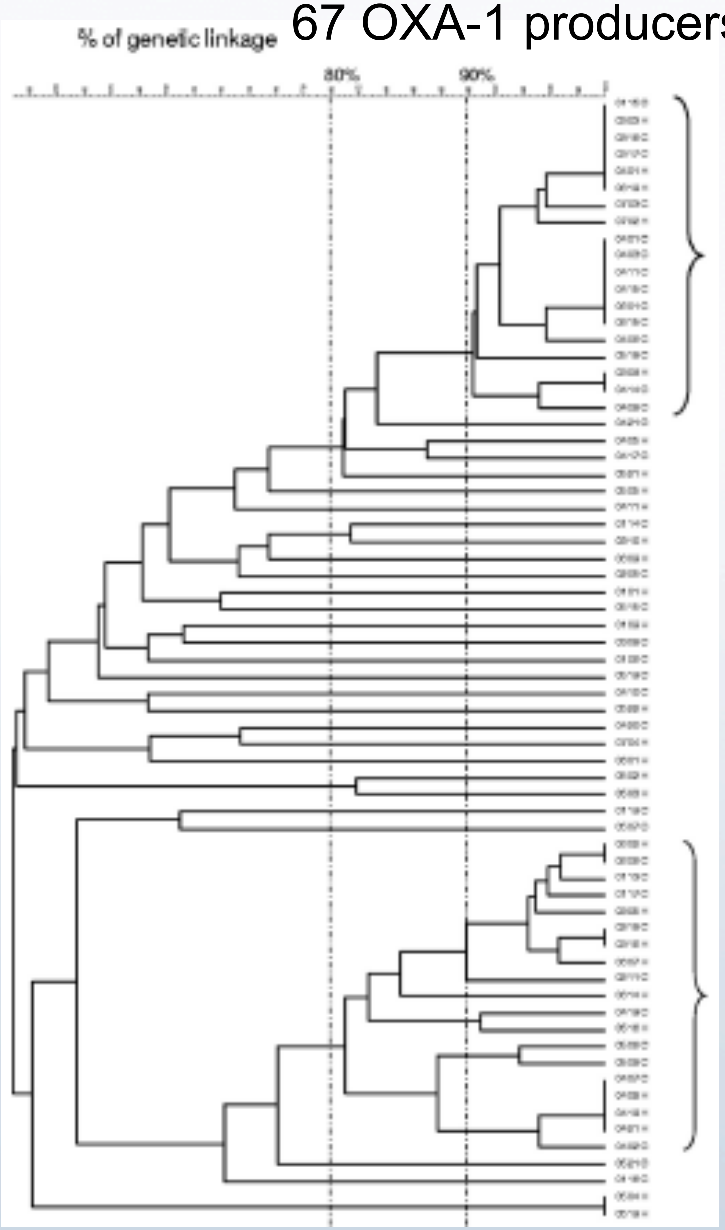
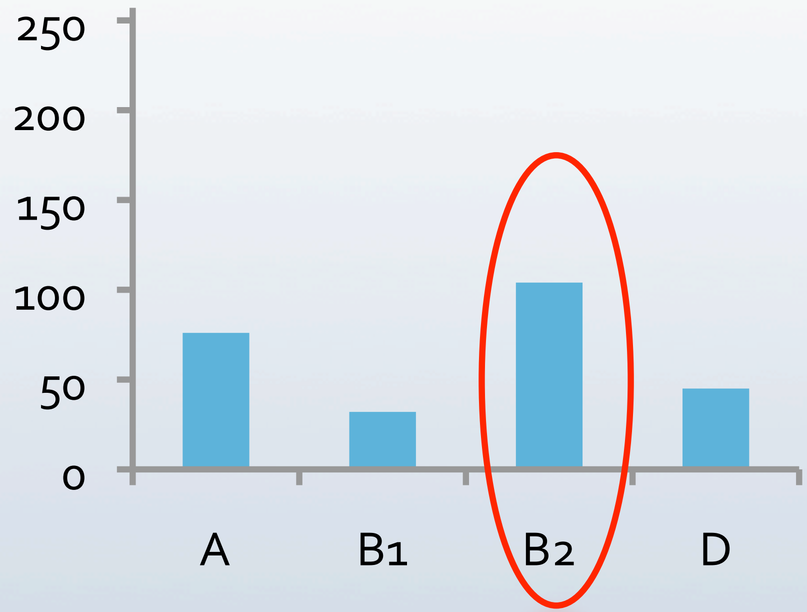
# AMC resistance

67 OXA-1 producers



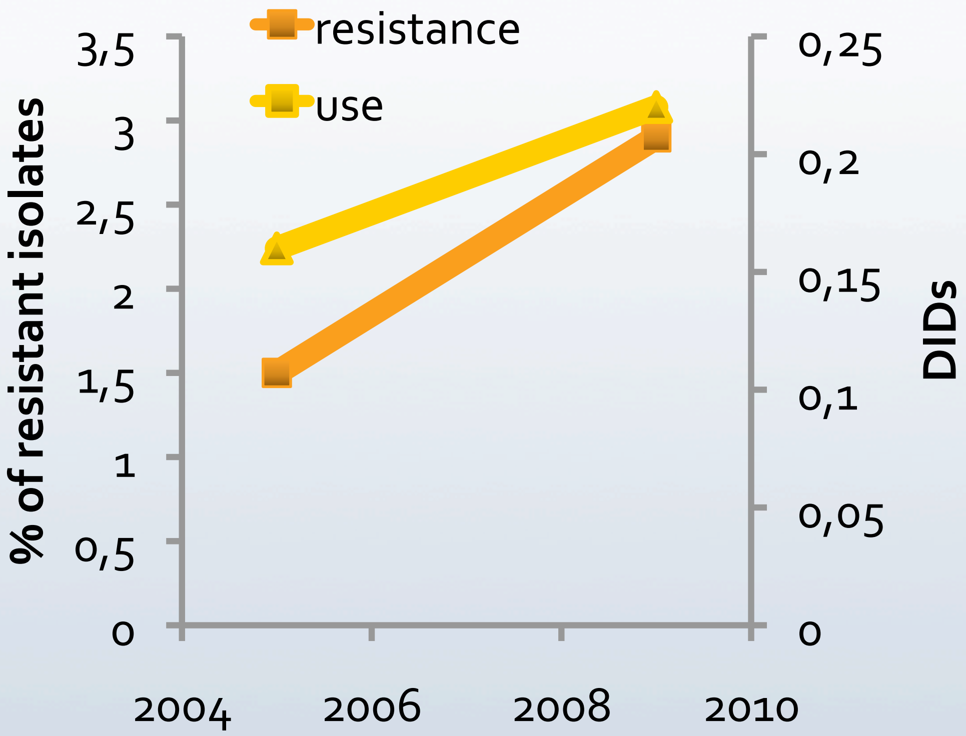

Phylogroup A
ST88

Phylogroup B2
ST131

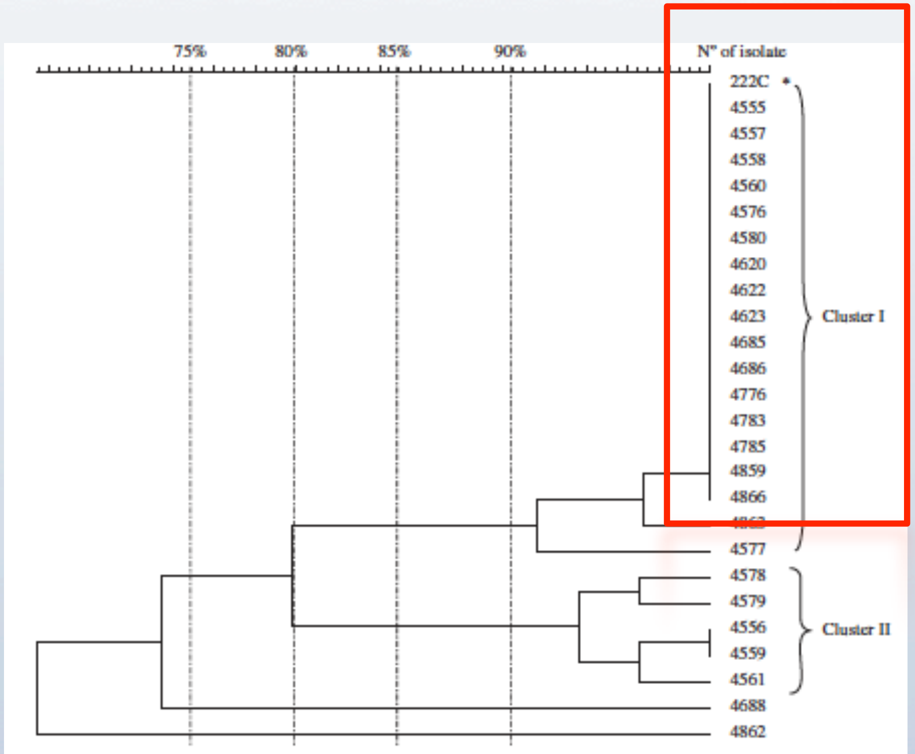



Oteo et al. Antimicrob Agents Chemotherapy 2012

# Fosfomycin resistance




O25b/B2 isolates (16,4%)
Females (12,3%)
>65 years old (11,0%)
Nursing home (23,5%)

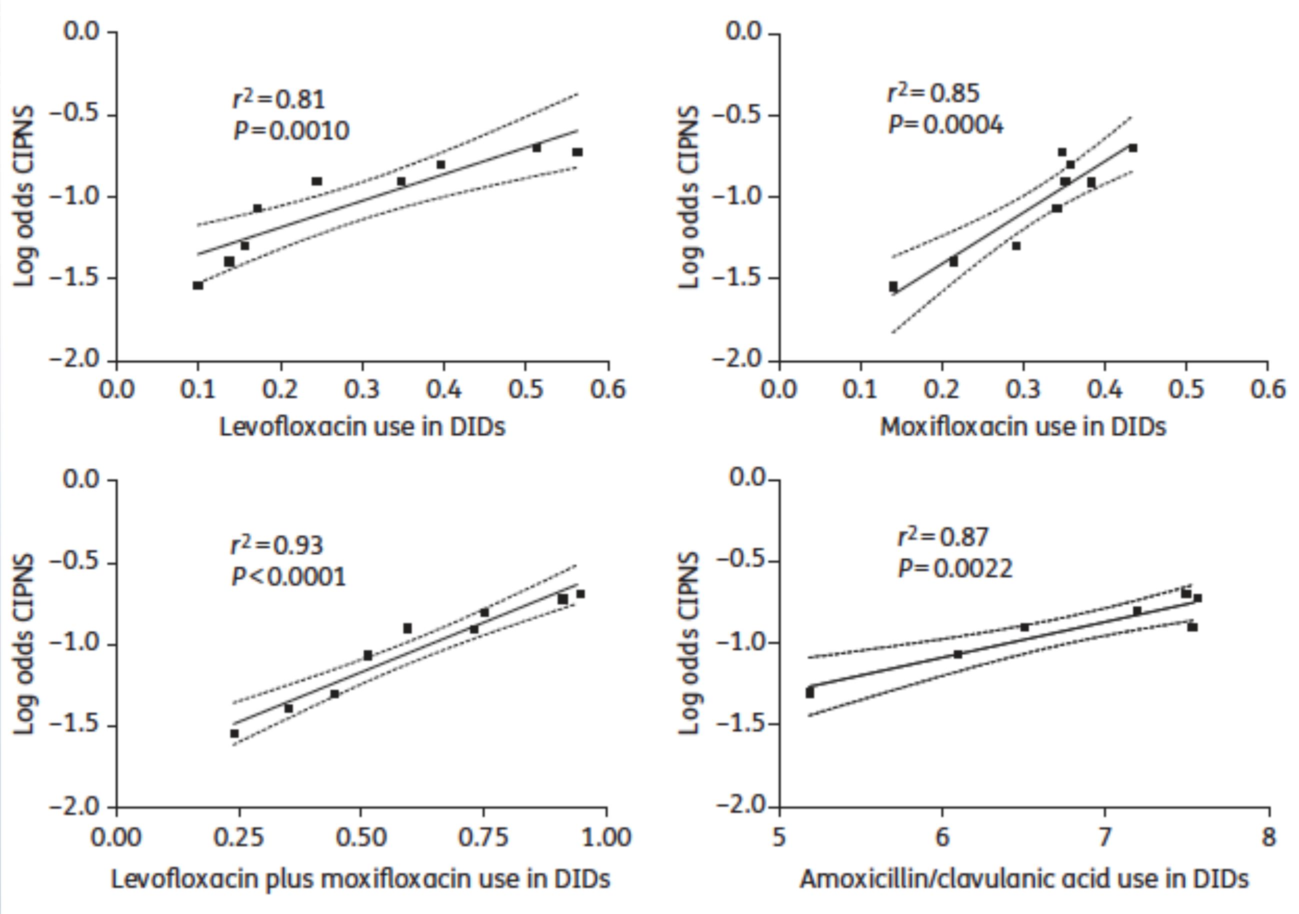



Oteo et al . J Antimicrobial Chemother 2010

# Fluorquinolones resistance

Non susceptible to ciprofloxacin

17,6% 2001 → 32,7% 2010

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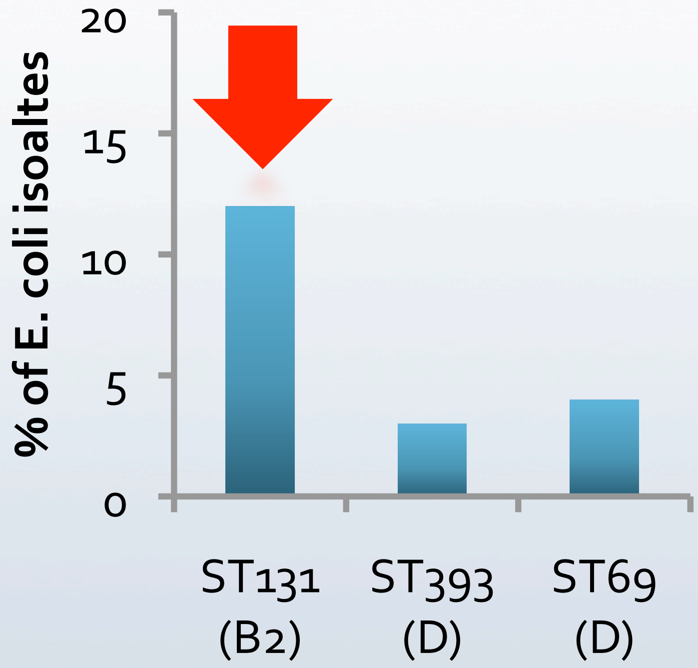
Cuevas et al. J Antimicrob Chemother 2011

# ST131 *E. coli* in Spain

2009: 500 consecutives *E. coli* from 5 hospital (January-February




| Resistant to: | ST131 | 3 clones |
|---|---|---|
| cotrimoxazol | 18% | 32% |
| Fluorquinolones | 26% | 38% |
| Amox/clav | 15% | 15% |
| ESBL | 16% | 19% |
| >3 drugs class | 23% | 30% |

Previous treatment Amoxycillin/clavulanate (OR: 2.07;95%CI: 1.08–3.96)
fluoroquinolones (OR: 2.48;95%CI: 1.41–4.34)

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Blanco et al. J Antimicrob Chemother 2011
López-Cerero et al. J Antimicrob Chemother 2013

# Conclusions

- In Spain, *E. coli* shows higher resistance rates to amoxicillin/clavulanate, cotrimoxazol and quinolones than the rest of Europe.
- Nitrofurantoine and fosfomycin remained good activity
- Recently, isolates of *E. coli* from the community non susceptible to amoxicillin/clavulanate, fosfomycin and fluoroquinolones have increased in Spain
- ESBL producers showed a significant increased trend from 2000
- Carbapenemase producers are currently restricted to hospitals
- Although resistant isolates were genetically diverse, dissemination of the epidemic clone ST131 *E. coli* along with increase use of amoxicillin/clavulanate and fluorquinolones could justify the observed raises.