

Increased survival of *Staphylococcus aureus* bacteraemia after involvement of the antibiotic team and a bundle of interventions .

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Introduction

Staphylococcus aureus is a common cause of bacteraemia (SAB):

- Associated with high mortality (10-30%) and seeding complications.
- Studies show that a bundle of interventions and involvement of a multidisciplinary antibiotic team can improve outcome.

Methods

- Retrospective cohort study
- 148 adult patients with SAB (2013-2015)
- Excluding 31 patients deceased <14 days work-up in this group could not fulfill best practice due to severity of illness and abstinence

We studied the effect of:

- Involvement of the antibiotic team
- Adherence to the individual bundle elements on mortality and relapse rates (<12 months)

The bundle of interventions for optimal treatment was defined based on literature research:

1. Involvement of antibiotic team (bedside consultation)
2. Follow-up blood cultures (until negative)
3. Adequate antibiotic treatment (following guidelines)
4. Source control (removal of focus if possible)
5. Complementary analysis (PET scan, TTE, TEE)

Results

Table 1

Focus	Total	#removed (%)
Invasive materials (e.g. i.v.-lines, porth-o- cath)	32	31 (97%)
Flebitis	22	22 (100%)
Bones and joints (e.g. osteomyelitis, arthritis)	20	9 (45%)
Skin (e.g. abscesses, erysipelas)	13	7 (54%)
Endocarditis	9	8 (89%)
Urosepsis	9	6 (67%)
Joint prostheses (e.g. hip, knee, osteosynthesis)	6	2 (33%)
Airway	6	2 (33%)
Mediastinitis	5	4 (80%)
Veinprostheses (e.g. bifurcatieprothese)	3	3 (100%)
Other (e.g. parotitis, mesh implant)	5	3 (60%)
Not known	18	0
Total	148	97 (66%)

Table 1 shows the foci associated with SAB.

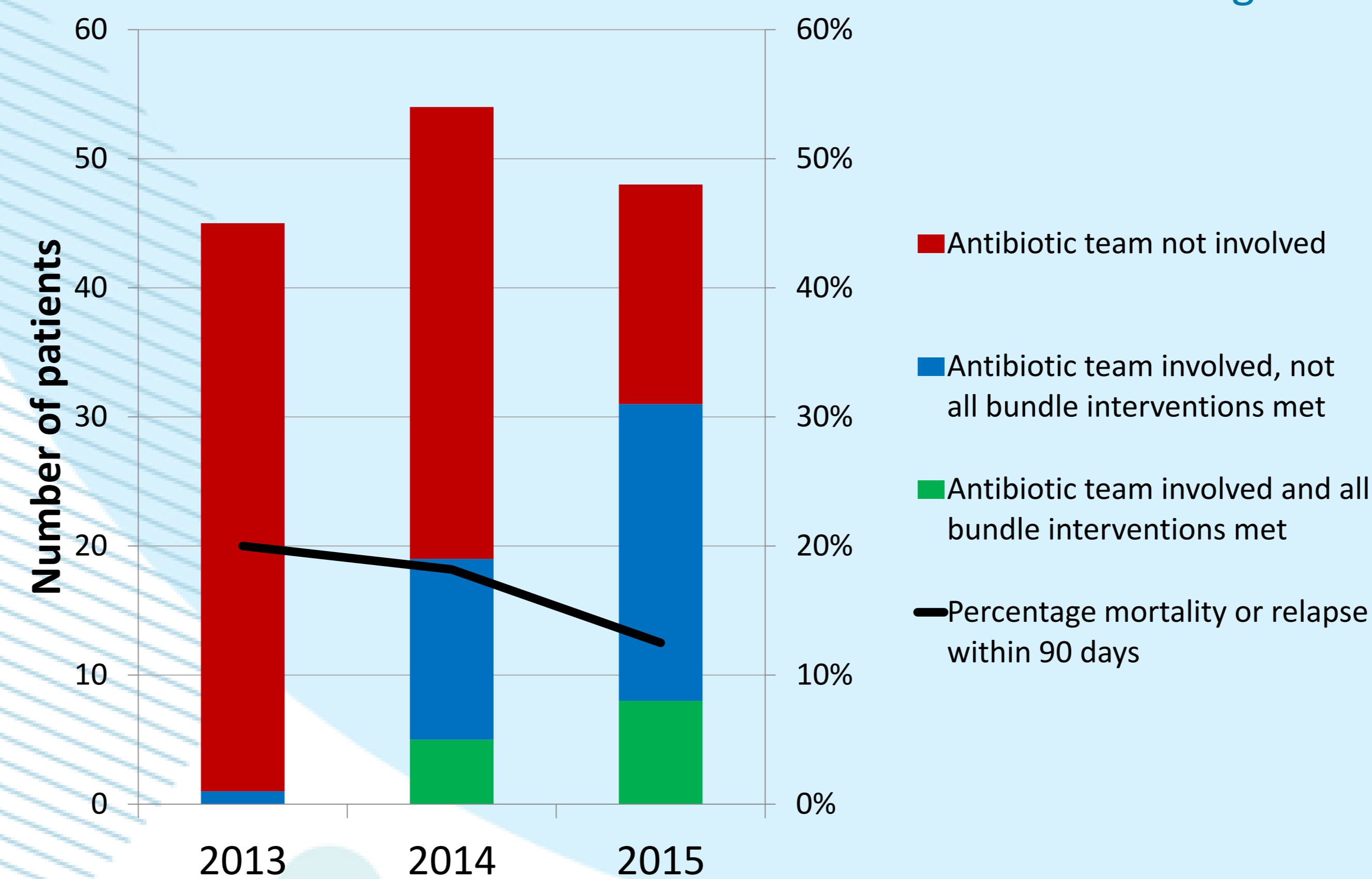


Figure 1

Figure 1 shows the effect of the antibiotic team involvement on mortality/relapse.

The effect of involvement of the antibiotic team on the adherence to the bundle interventions, is shown in Table 2.

Selection bias occurred in the early years as a result of preferred consultation by the antibiotic team on seriously ill patients (see also Figure 1).

Table 2

Bundle element	n=51 Team involved		n=97 Team not involved		p
	yes	no	yes	no	
Follow-up bloodcultures	24 47%	27 53%	40 41%	57 59%	0.60
Adequate antibiotic treatment	34 67%	17 33%	50 52%	47 48%	0.08
Infection source removed	34 83%	7 17%	63 78%	18 22%	0.64
Complementary analysis on high risk factors	31 72%	12 28%	38 57%	29 43%	0.11
Completed all of the above	13 25%	38 75%	18 19%	79 81%	0.40
Mortality < 90 days and /or relapse SAB	5 10%	46 90%	20 21%	77 79%	0.11

Conclusions

In line with literature we found an improvement in the mortality/relapse percentages from 21% to 10%. The results are not significant but promising and show a trend towards improved care and increased survival rate in SAB when the antibiotic team is involved.

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