SUPPRESSIVE ANTIBIOTIC THERAPY (SAT)

HOW LOW CAN YOU GO?

Marjan Wouthuyzen-Bakker

Infectious disease specialist, University Medical Center Groningen

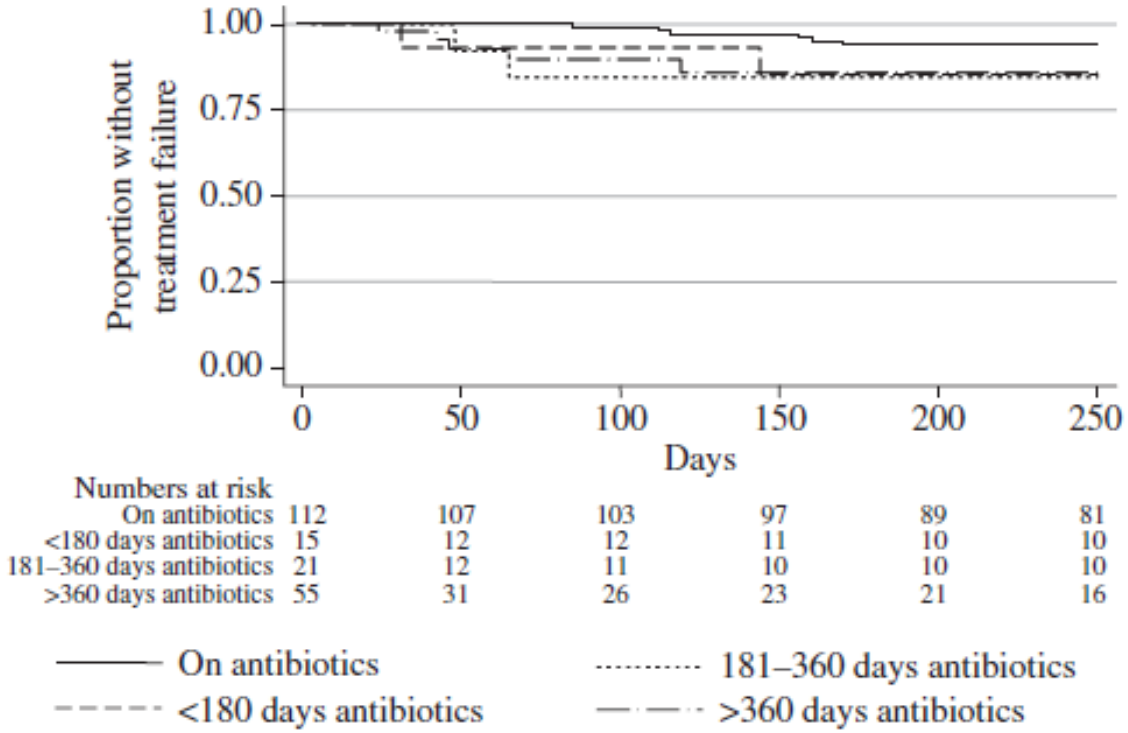
WHAT IS SAT?

- Life long antibiotic treatment to PREVENT relapse
- NOT with the intention to cure the PJI

One hundred and twelve infected arthroplasties treated with 'DAIR' (debridement, antibiotics and implant retention): antibiotic duration and outcome

I. Byren[1,2*†], P. Bejon[1,2†], B. L. Atkins[1–3], B. Angus[2], S. Masters[1], P. McLardy-Smith[1], R. Gundle[1] and A. Berendt[1]

Journal of Antimicrobial Chemotherapy (2009) **63**, 1264–1271



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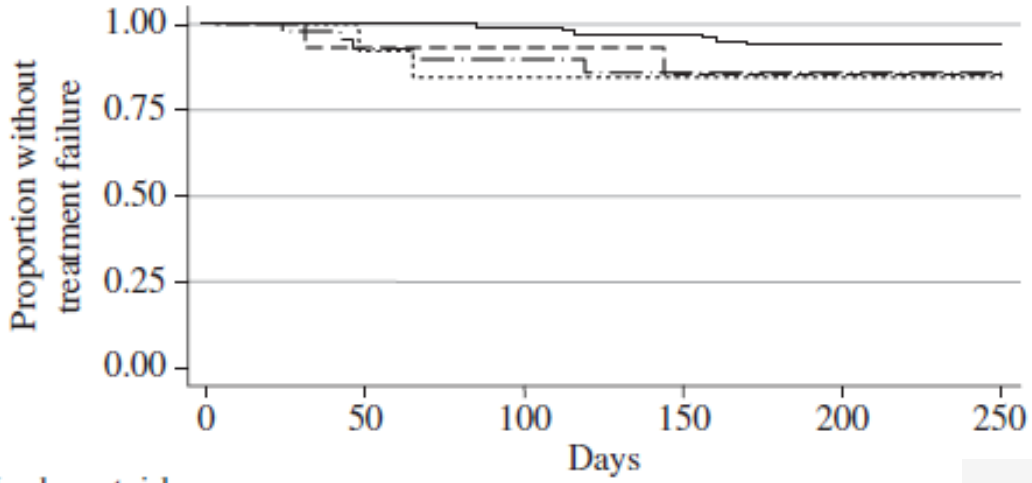

Numbers at risk					
On antibiotics	112	107	103	97	89
<180 days antibiotics	15	12	12	11	10
181–360 days antibiotics	21	12	11	10	10
>360 days antibiotics	55	31	26	23	21

On antibiotics
181–360 days antibiotic
<180 days antibiotics
>360 days antibiotics

Risk relapse after stopping AB:

- < 180 days AB: HR 3.7
- 181-360 days AB: HR 9.1
- > 360 days AB: HR 5.1

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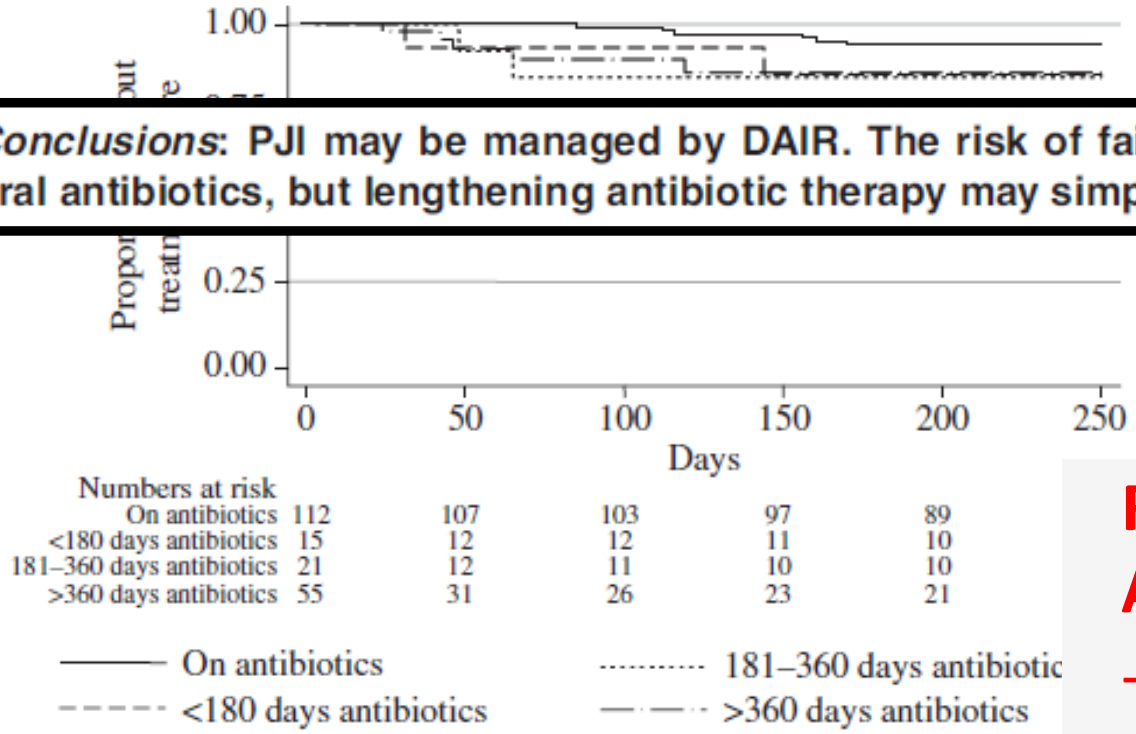
Conclusions: **PJI may be managed by DAIR. The risk of failure with this strategy rises after stopping oral antibiotics, but lengthening antibiotic therapy may simply postpone, rather than prevent, failure.**



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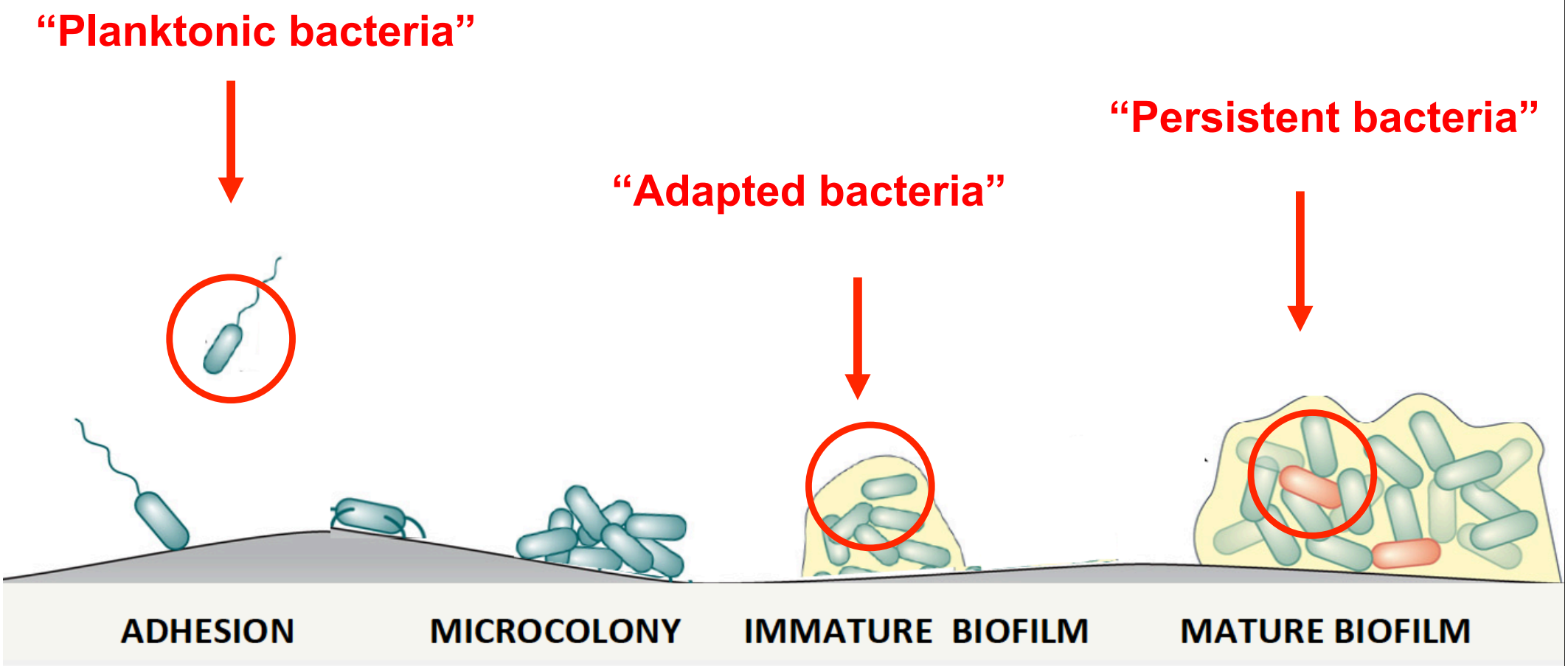
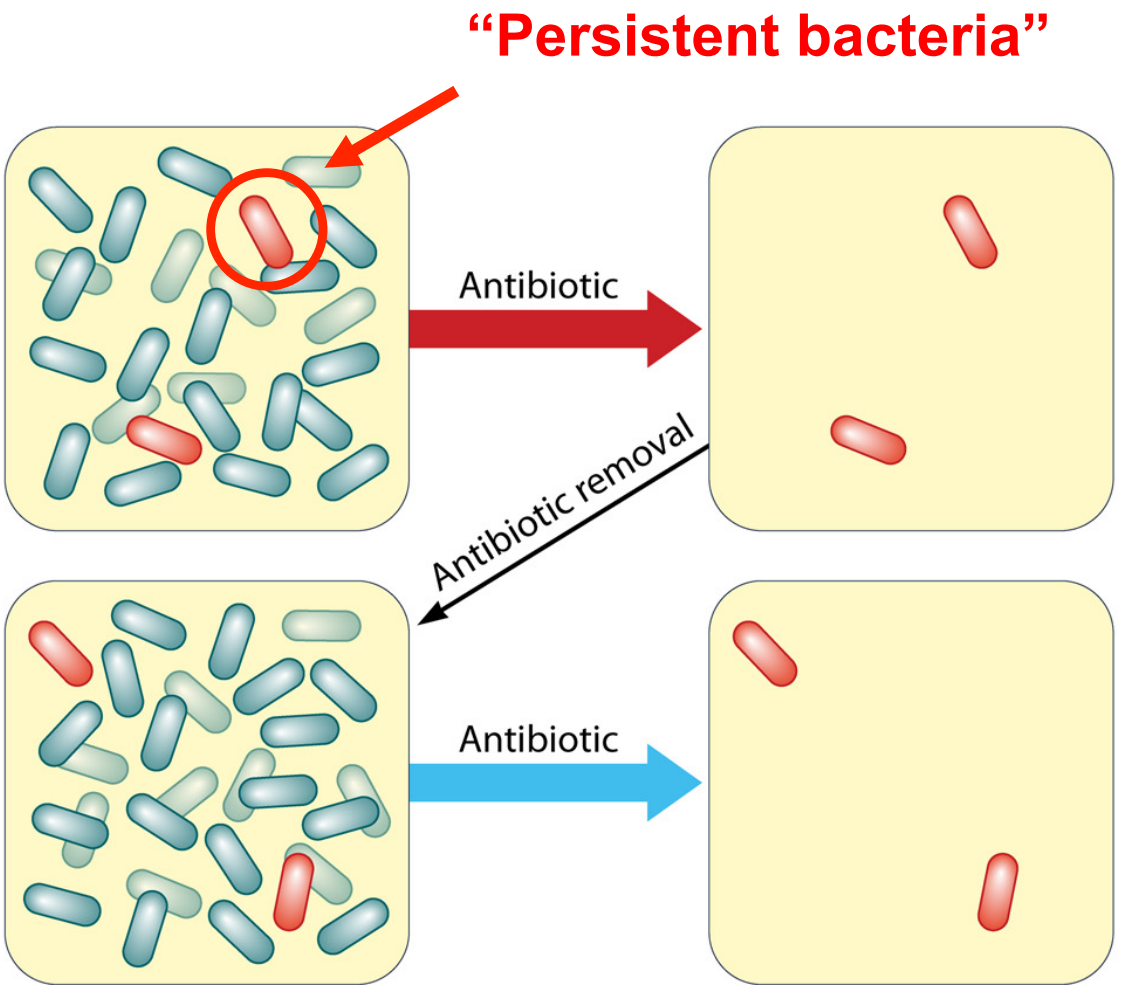
RATIONALE SAT



Biofilm-Related Infections: Bridging the Gap between Clinical Management and Fundamental Aspects of Recalcitrance toward Antibiotics

David Lebeaux,[a,b] Jean-Marc Ghigo,[a] Christophe Beloin[a]

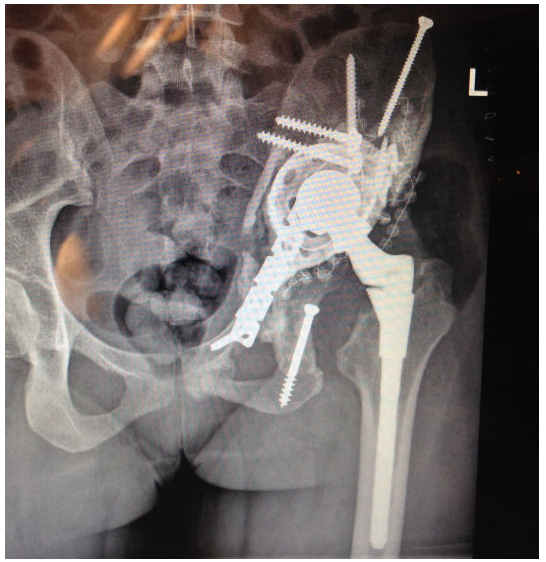


INDICATIONS SAT

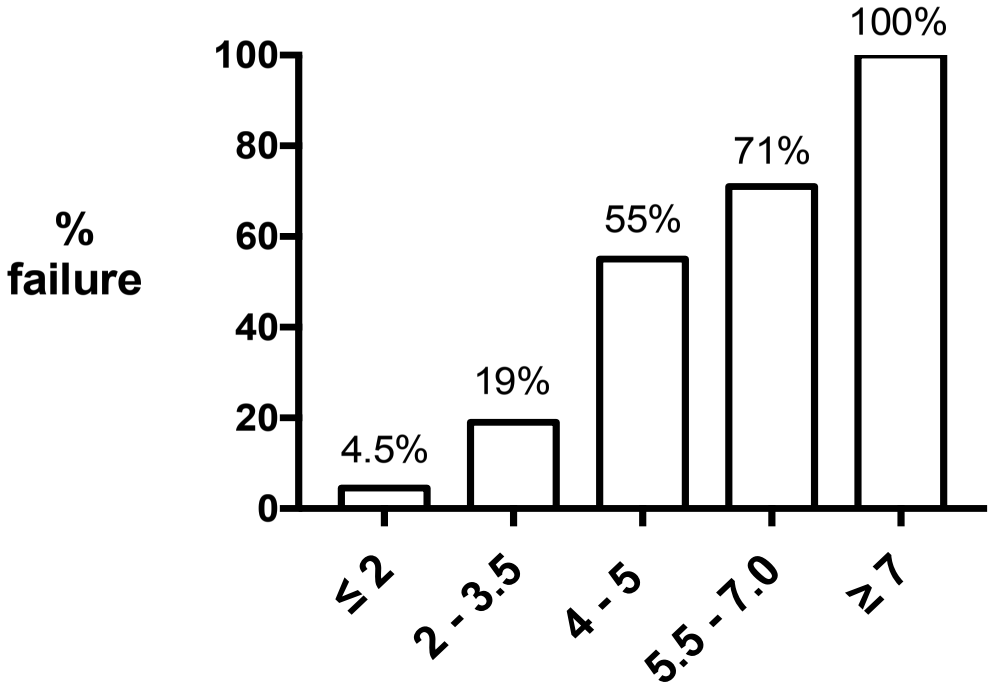
- Chronic infections OR
- Acute infections treated with DAIR and a high failure risk

AND

- Not eligible for revision surgery



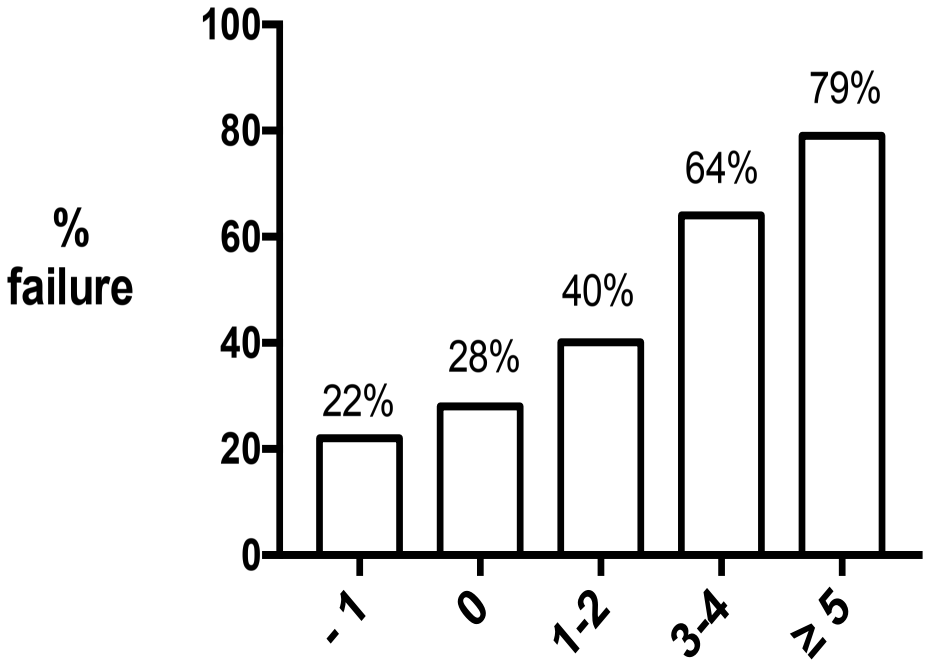
KLIC-SCORE: PREOPERATIVE RISK SCORE FOR PREDICTING FAILURE IN EARLY ACUTE PJI (n=222)



K	Chronic renal failure (Kidney)	**2**
L	Liver cirrhosis	**1.5**
I	Index surgery: indication prosthesis: fracture OR revision prothesis	**1.5**
C	Cemented prosthesis	**2**
	CRP > 150 mg/L	**2.5**

Tornero E et al. Clin Microbiol Infect. **2015**; 21(8):e786.e9-786.e17.

CRIME80-SCORE: PREOPERATIVE RISK SCORE FOR PREDICTING FAILURE IN LATE ACUTE PJI (n=340)



C	COPD	**2**
	CRP > 150 mg/L	**1**
R	Rheumatoid arthritis	**3**
I	Indication prosthesis: fracture	**3**
M	Male	**1**
E	Exchange of mobile components	**-1**
80	Age > 80 years	**2**

Wouthuyzen-Bakker et al. Submitted.

EFFICACY SAT

Chronic and acute infections mixed, with or without prior surgery, different definitions for failure

Author	N	FU (*mo*)	Failure	Time to Failure (*mo*)	Risk factors failure
Escudero, 2018 *Preliminary data*	302	48	40%	33 ± 26	*MRSA*
Pradier, 2017 *(tetracyclins)*	78	34 ± 20	28%	15 ± 13	knee
Prendki, 2017	136	3 – 80	34%	-	WHO-score, male gender, non-B-lactam
Wouthuyzen-Bakker, 2017	21	21 (3-81)	33%		Tumor prosthesis, RA, High ESR *S. aureus*
Siqueira, 2015	92	69 ± 38	31%	60 ± 41	knee, prior revisions
Prendki, 2014	38	48	40%	-	Low albumin, sinus tract, *S. aureus*
Rao, 2003	36	60	14%	12-35	*S. aureus*
Segreti, 1998	18	60 (49 -103)	17%	9 (4 -13)	*S. aureus*
Tsukayama, 1991	13	38	77%	-	-
Goulet, 1988	19	49	53%	-	-
OVERALL	**753**		**36%**		***S. aureus***

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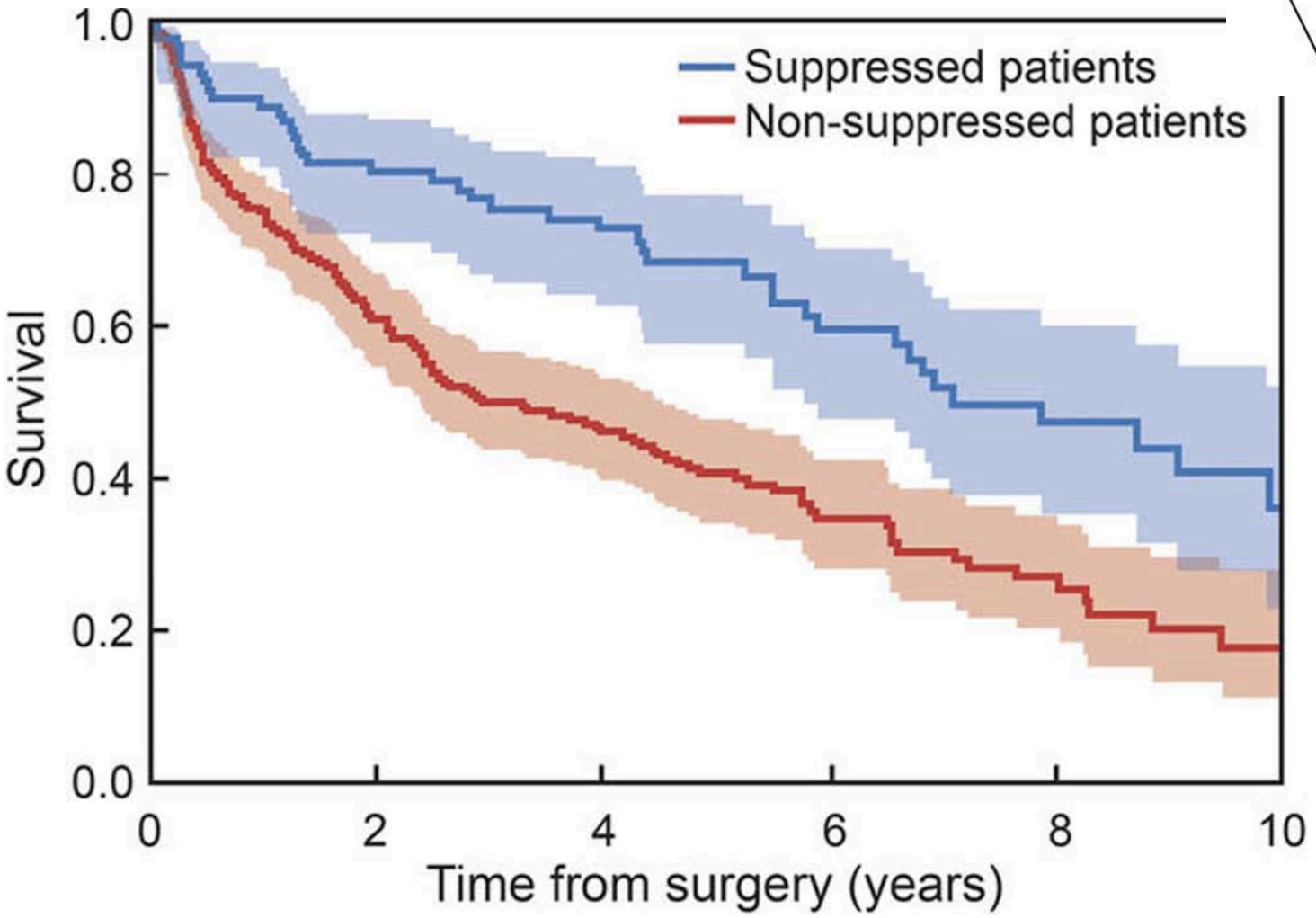
NON FAILURES: CURED FROM THE BEGINNING OR SUPPRESSED?

Chronic Suppression of Periprosthetic Joint Infections with Oral Antibiotics Increases Infection-Free Survivorship

Marcelo B.P. Siqueira, MD, Anas Saleh, MD, Alison K. Klika, MS, Colin O'Rourke, MS, Steven Schmitt, MD, Carlos A. Higuera, MD, and Wael K. Barsoum, MD

3:1 matching ratio for:
- Age, gender, BMI
- No. of previous revisions
- Hip Vs Knee
- I&D with poly exchange Vs two-stage
- SA Vs not-SA infection
- Charlson C.I.



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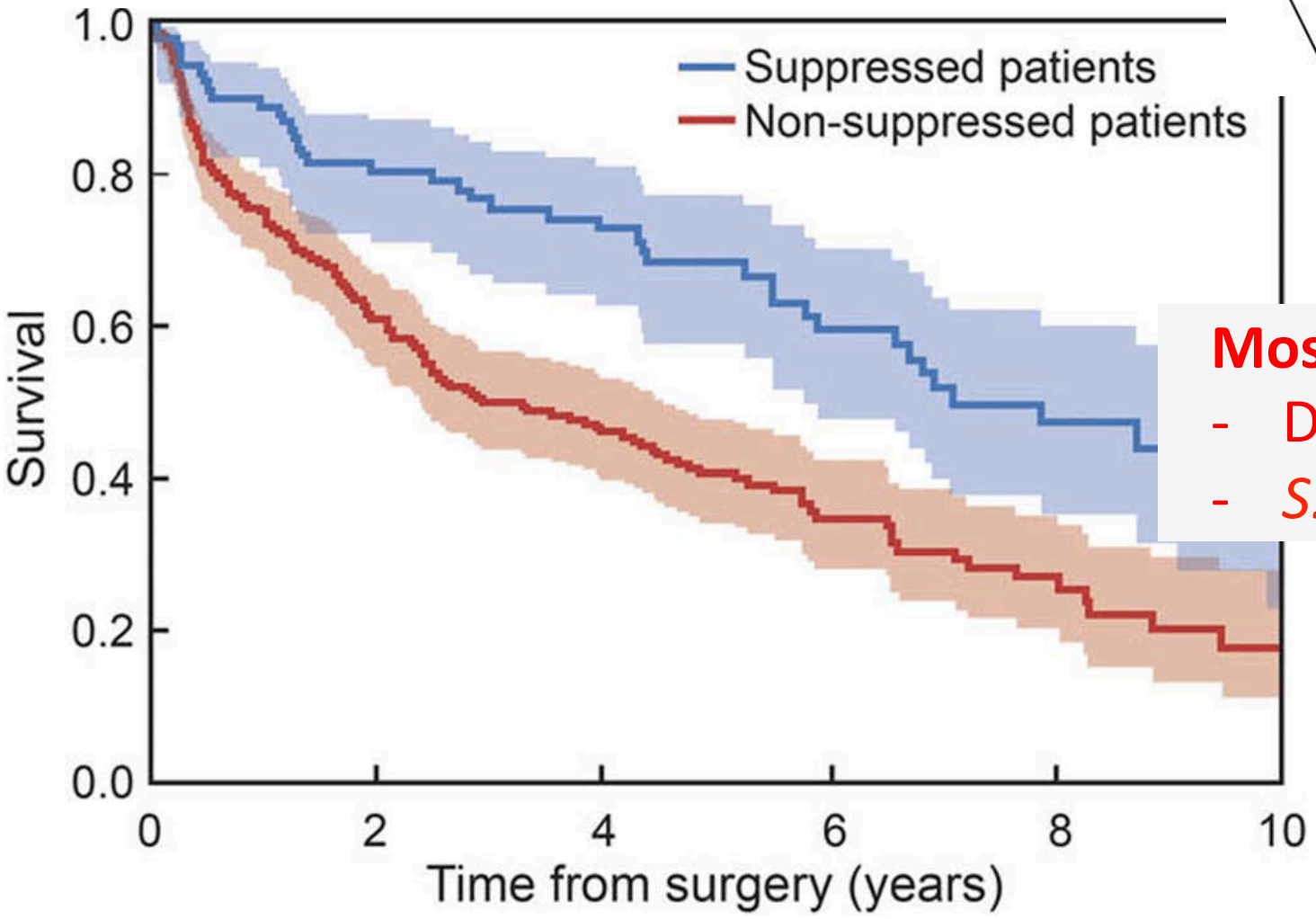

Most benefit in:
- DAIRs
- *S. aureus*

TOLERABILITY SAT

Author	N	Side effects
Escudero, 2018 *Preliminary data*	302	23%
Pradier, 2017 *(tetracyclins)*	78	18%
Prendki, 2017	136	18%
Wouthuyzen-Bakker, 2017	21	43%
Siqueira, 2015	-	-
Prendki, 2014	38	13%
Rao, 2003	36	8%
Segreti, 1998	18	22%
Tsukayama, 1991	13	38%
Goulet, 1988	-	-
OVERALL	**642**	**21%**

HOW LOW CAN YOU GO?

- Very low when PJI was already cured in the first place
- Not cured: maintain at therapeutic dose when tolerated
- Conclusion: we need strict indications/recommendations to start SAT