Relationship of Microbiome, Antimicrobial Resistance, and Wound Closure in >90% TBSA Burn Patients

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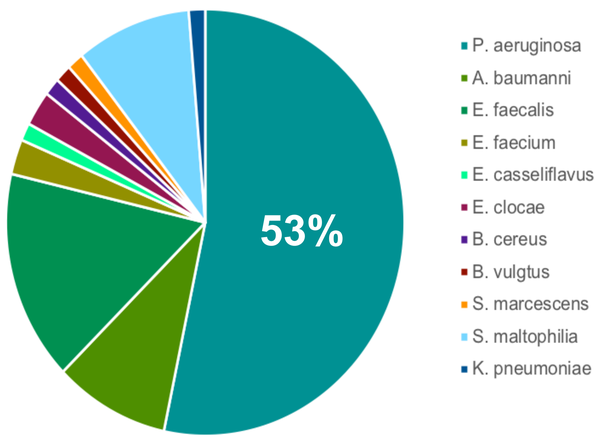
Conclusion Headline & Results

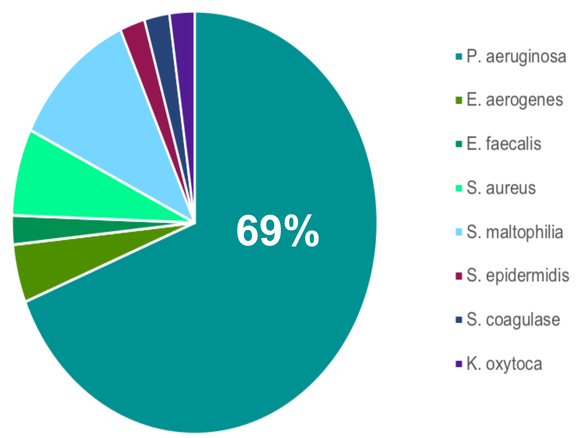
As wound closure passes a certain threshold, the number of antibiotics needed decreases, as does the pressure for *Pseudomonas aeruginosa* antibiotic resistance.

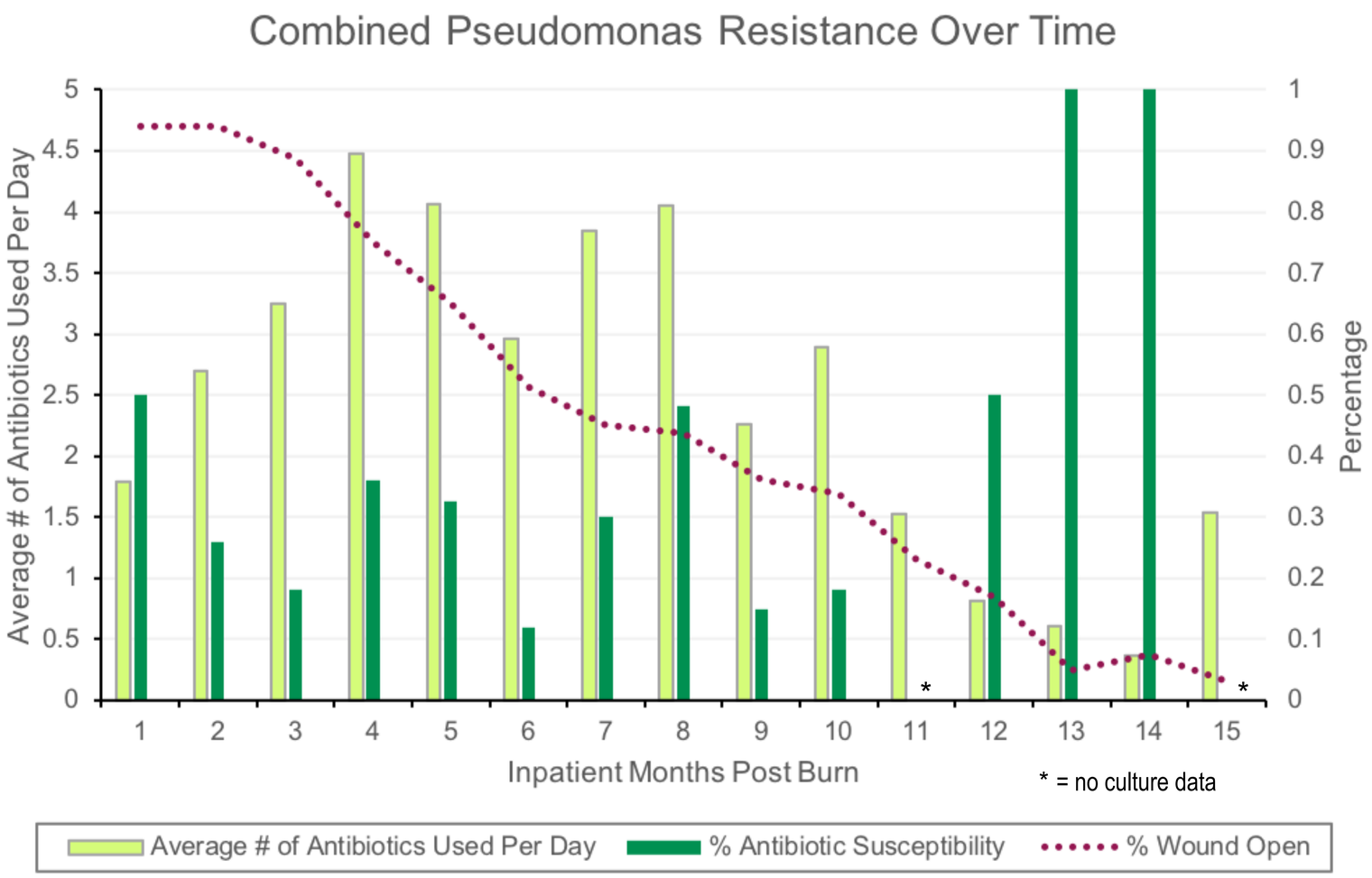
P. aeruginosa on nutrient agar

Patient A: Total # of Positive Bacterial Cultures (per 11 species)



Patient B: Total # of Positive Bacterial Cultures (per 8 species)





Significance Statement

What is the relationship between prolonged wound closure / antibiotic use and antibiotic resistance in large-scale TBSA burn patients?

Data Source & Population

- Retrospective review of all patients, from 2010 to present, with >90% TBSA burns who survived to discharge
- Examination of antibiotic use, antibiotic resistance, and wound closure over time

Patient Demographics		
	Patient A	Patient B
Age, years (gender)	30 (female)	45 (male)
% TBSA	95%	90%
Hospital LOS, days	**425**	**341**
# of OR visits	52	43
# of positive bacterial cultures	75	45
# of days on antibiotics (% of LOS)	**389** (92%)	**313** (92%)
% resistant bacterial species	57%	71%

Lessons Learned

- ***Pseudomonas aeruginosa*** **was the most commonly isolated organism in 65% of all cultures**
- ***Pseudomonas*** **antibiotic resistance appears to be related to both antibiotic use and wound burden**
- **Pseudomonas antibiotic resistance is not permanent**

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