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# Effective Treatment Guidelines for *Pseudomonas aeruginosa* Bacteraemia

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# Pseudomonas Bacteraemia



32.9%  
mortality at 28  
days<sup>1</sup>

1. D.A. Enoch, J. Kuzhively, A. Sismey, A. Grynok, J.A. Karas. **Pseudomonas Aeruginosa Bacteraemia in Two UK District Hospitals**. Infect Dis Rep 2013;5(1):e4



# Cohort

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## Boroughs of North West London

### Period:

April 2016 - March 2017

### Mortality measured at:

- 7 days
- 28 days





# Results

## Over the year:

55 cases of bacteraemia from 52 patients

Male: 32 (61.5%) vs Female: 20 (39.5%)

Age: mean 52 years (range 1 day -93 years)

Comorbidities	Frequency N(%)
Cancer	21 (28)
Renal Failure	13 (18)
DM	9 (12)
Heart Disease	8 (11)
Non-identifiable	7 (10)
Hypertension	6 (8)
Premature	4 (6)
Intestinal failure	2 (3)
Cirrhosis	1 (1)
Sickle Cell Anaemia	1 (1)
Alzheimer's	1 (1)
Benign Prostatic Hypertension	1 (1)
Human Immunodeficiency Virus	1 (1)



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# Initial Antimicrobial Therapy

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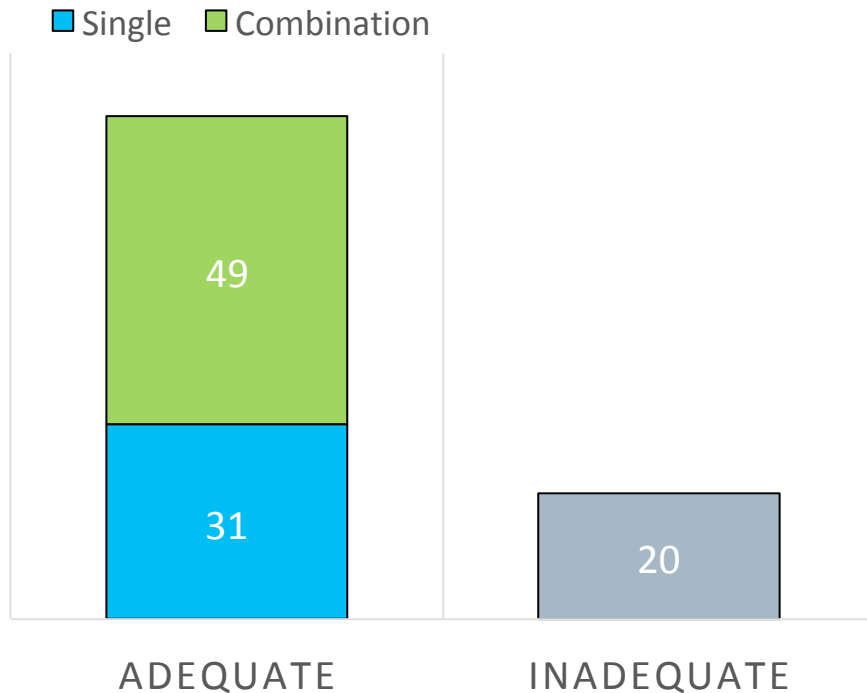
**All-cause mortality:**

- 16% at 7 days
- 22% at 28 days

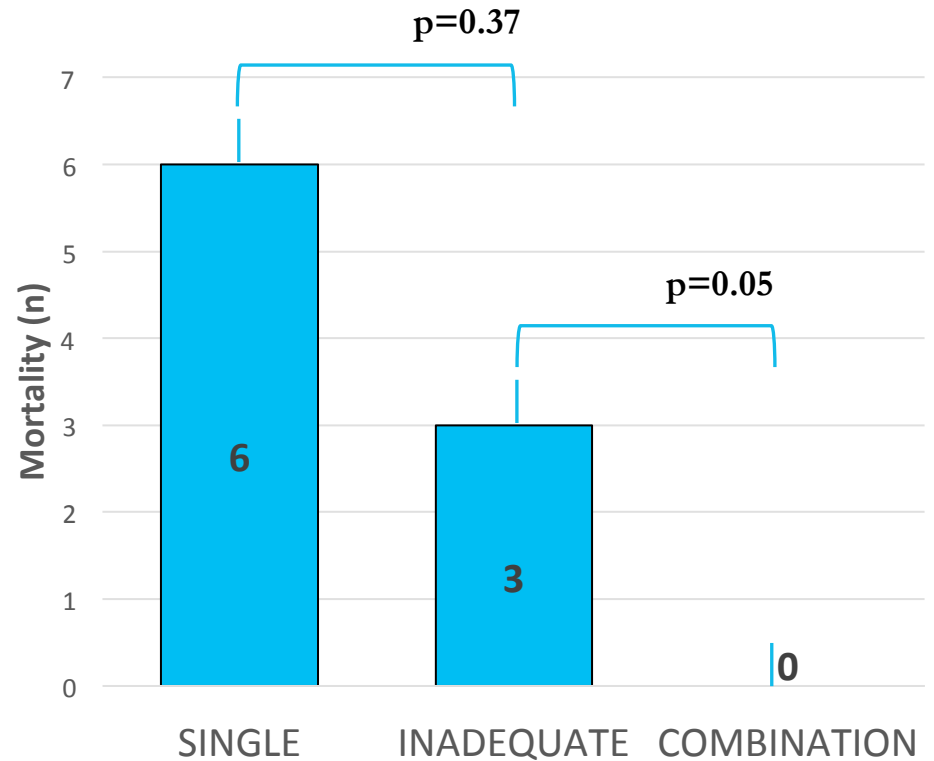


# Initial Antimicrobial Therapy

## INITIAL ANTIMICROBIAL THERAPY



## MORTALITY AT 7 DAYS





# Logistic regression

Variable	OR	95% CI	P-value
Female	20.2 (at 28 days)	1.53-266	0.022
Prematurity	36.5 (at 28 days)	2.59-514.62	0.008
Pneumonia	25.18 (at 28 days)	1.91-412.3	0.015
Antibiotics, steroids, chemotherapy use in preceding 30 days	10.25 (at 28 days)	1.598-65.76	0.014
<b>No identifiable co-morbidity</b>	21.05 (at 28 days)	2.65-167.5	0.004
<b>Patients with no co-morbidities &amp; pneumonia</b>	8.27 (at 28 days)	1.008-67.87	0.049
<b>Patients with no co-morbidities &amp; inadequate initial therapy</b>	12.57 (at 7 days)	1.077-146.67	0.043
Age > 65	0.071 (at 7 days)	0.00627-0.806	0.033
Cancer	0.075 (at 28 days)	0.0085-0.669	0.02



# Results: key findings

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- ❖ Patients with no identifiable co-morbidities had significantly increased risk of mortality
- ❖ Inadequate initial empiric therapy and source being pneumonia were associated with significant increased mortality in these patients
- ❖ Conversely, cancer and age over 65, two identified high-risk patient groups in previous studies, both showed significantly decreased mortality rates
- ❖ Significant difference between combination (dual anti-pseudomonal) empiric therapy and inadequate anti-pseudomonal empiric therapy





# Implications for practice

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Initial empiric dual anti-pseudomonal therapy for high-risk populations is associated with demonstrable reductions in mortality from *P. aeruginosa* bacteraemia

Low-risk populations, where inadequate initial empiric anti-pseudomonal therapy was given, is here demonstrated to be associated with excess mortality.

Further risk analysis for *P. aeruginosa* must be undertaken among low-risk patients with common presentations associated with high mortality such as pneumonia.

Prescribing guidelines may need to be revised accordingly to minimise mortality.



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# Acknowledgements

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