UNIVERSITY OF CAMBRIDGE
School of Clinical Medicine

Addenbrooke's Hospital NHS
Cambridge University Hospitals NHS Foundation Trust

Infections in multi-visceral transplant patients

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Introduction

- Multi-visceral Transplant (MVT): transplant of multiple abdominal viscera (stomach, small bowel, pancreas), with or without the liver
  - Full MVT: includes liver
  - Modified MVT: doesn't include liver
- Indications
  - Acute – Catastrophic abdominal events (usually vascular)
  - Chronic – Intestinal failure
- Infection a recognised complication

Aims

1. Descriptive review

2. Changes in prophylaxis
   - Bacterial prophylaxis regime change in May 2014
     - Vancomycin and Meropenem to Tazocin
     - Duration (2 weeks) remained the same
   - CMV prophylaxis extended from 6 to 12 months
   - Fungal prophylaxis (Ambisome) remained the same

Methods

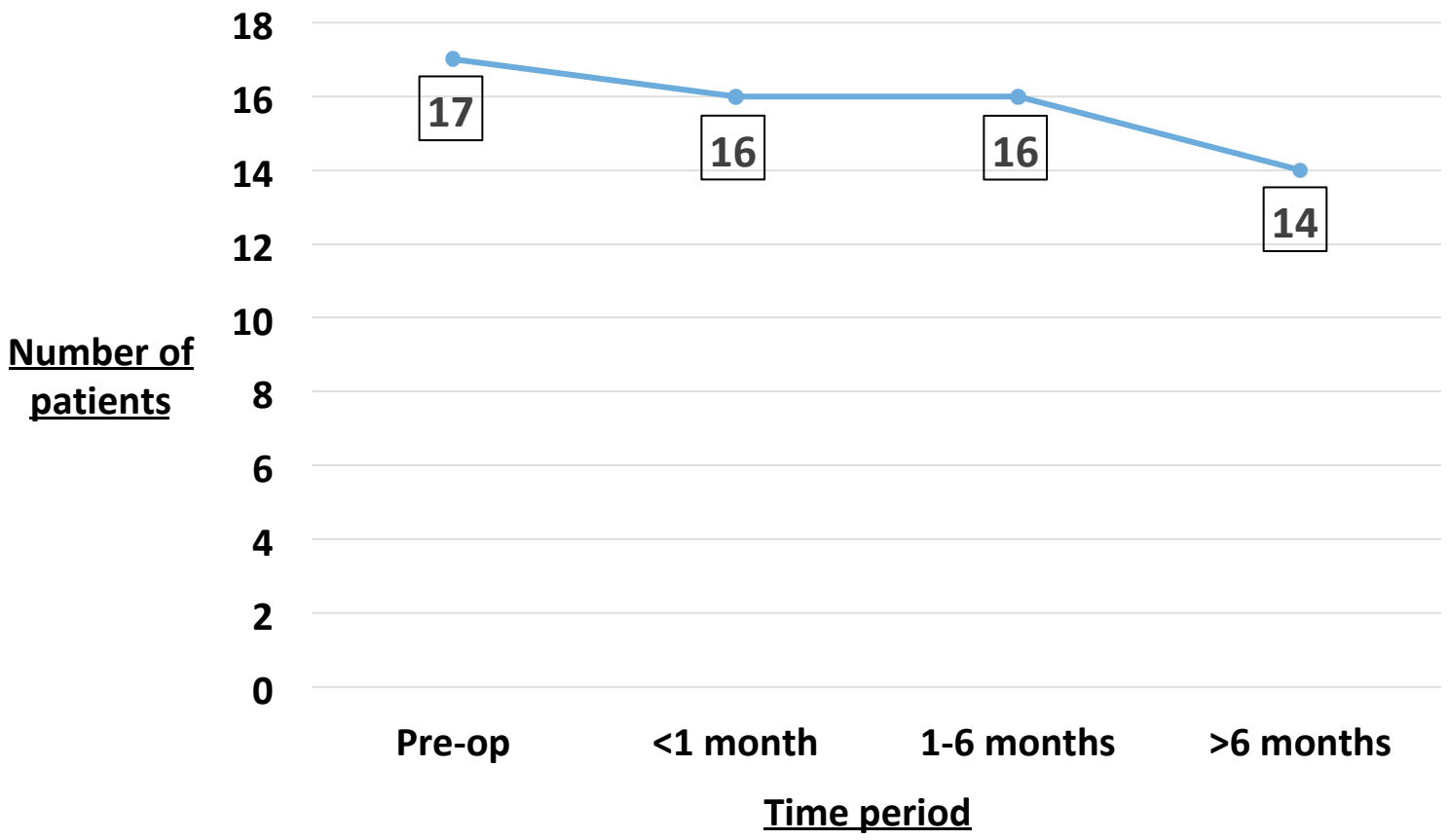
- Retrospective case series
- Inclusion criteria
  - Dates of transplant (January 1st 2015 - December 31st 2016)
  - Addenbrooke's only
  - MVT only (no isolated transplants)
- Electronic medical records (EPIC®; introduced in late 2014)
- Data collection proforma
  - Different types of infection (Viral, Bacterial, Fungal)
  - Chronology: Pre-op, Post-op (<1 month; 1-6 months; >6 months)

Demography

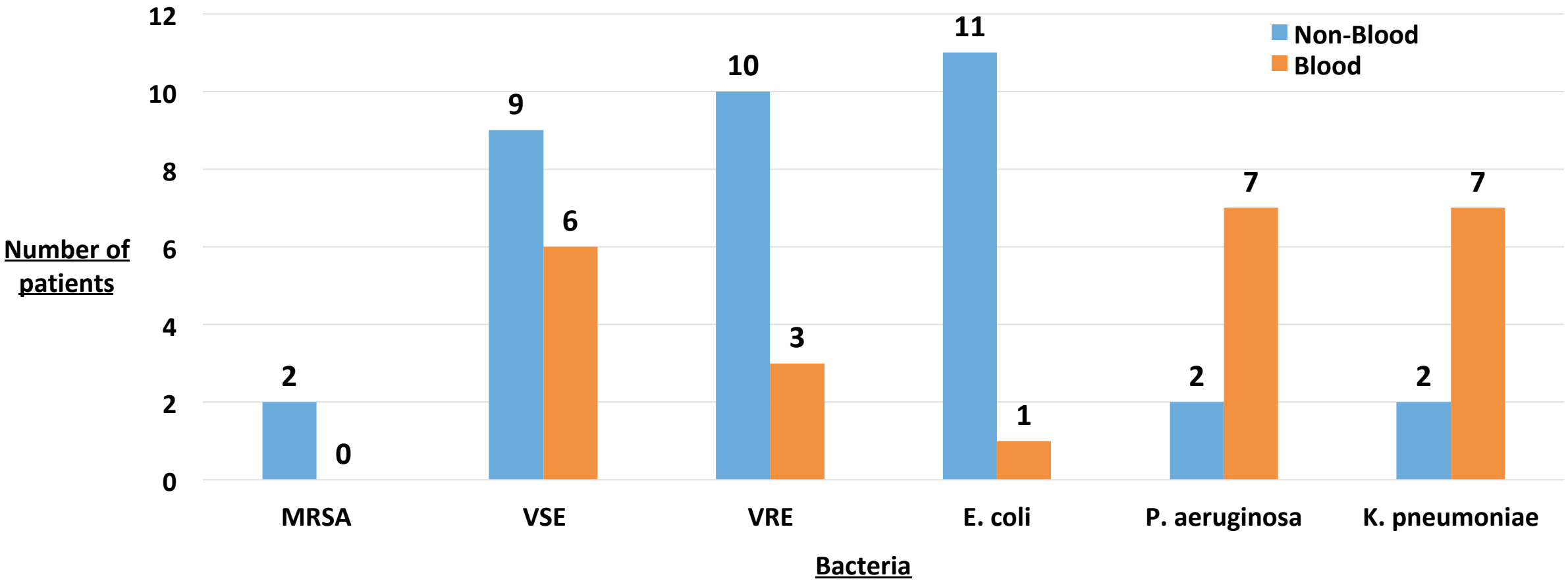
	Patient population studied	
Total no. of patients studied	17	7 Male: 10 Female
Age at operation	Mean 43.8 years	Range: 21-61 years
ASA score	Mean 3.5	Range: 2-5, *1 patient unknown ASA*
UKELD score	Mean 50.8 (~9% one year mortality risk)	Range: 45-62 *Only 5/10 patients had UKELD on EPIC®*
APACHE II score (ICU admission post-op)	14.1 (~7% post-op mortality)	Range: 11-22
Outcomes (survival/death)	Longest surviving MVT patient studied: 28 months	5/17 died

Results – "Follow-up"

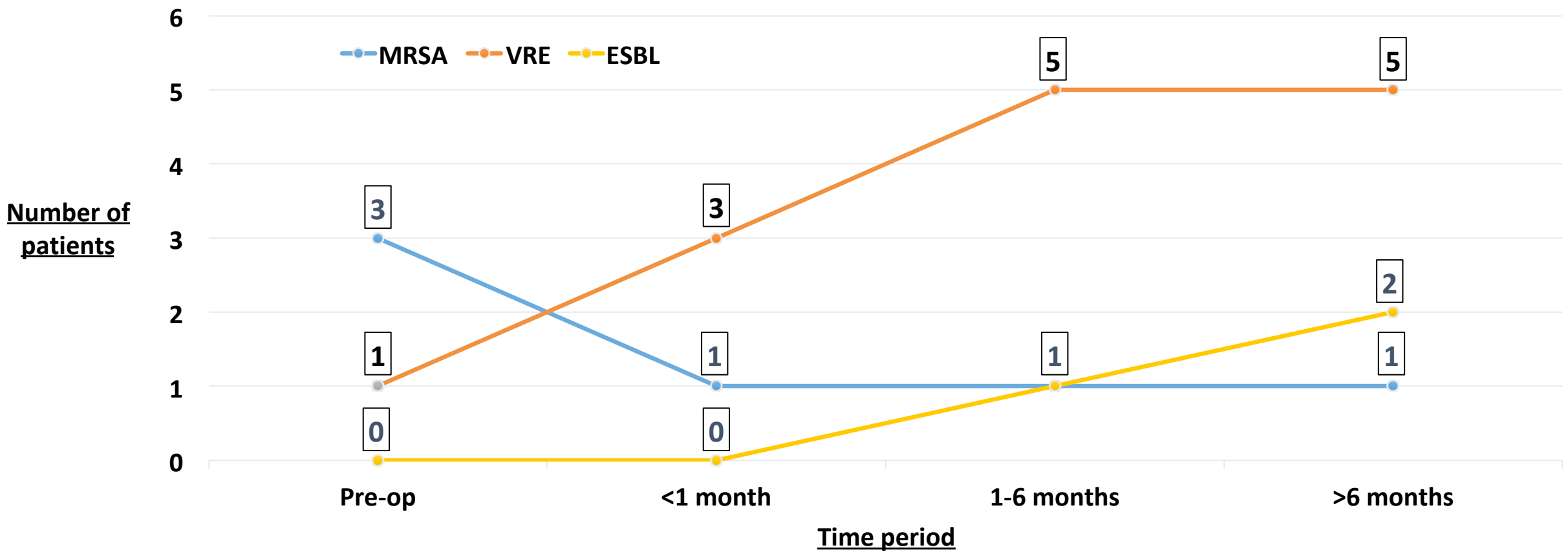
- 5 patients died during period of study
- 2 died into their 7th and 9th month post-op
- 1 died on 1st day post-op – not included in post-op figures



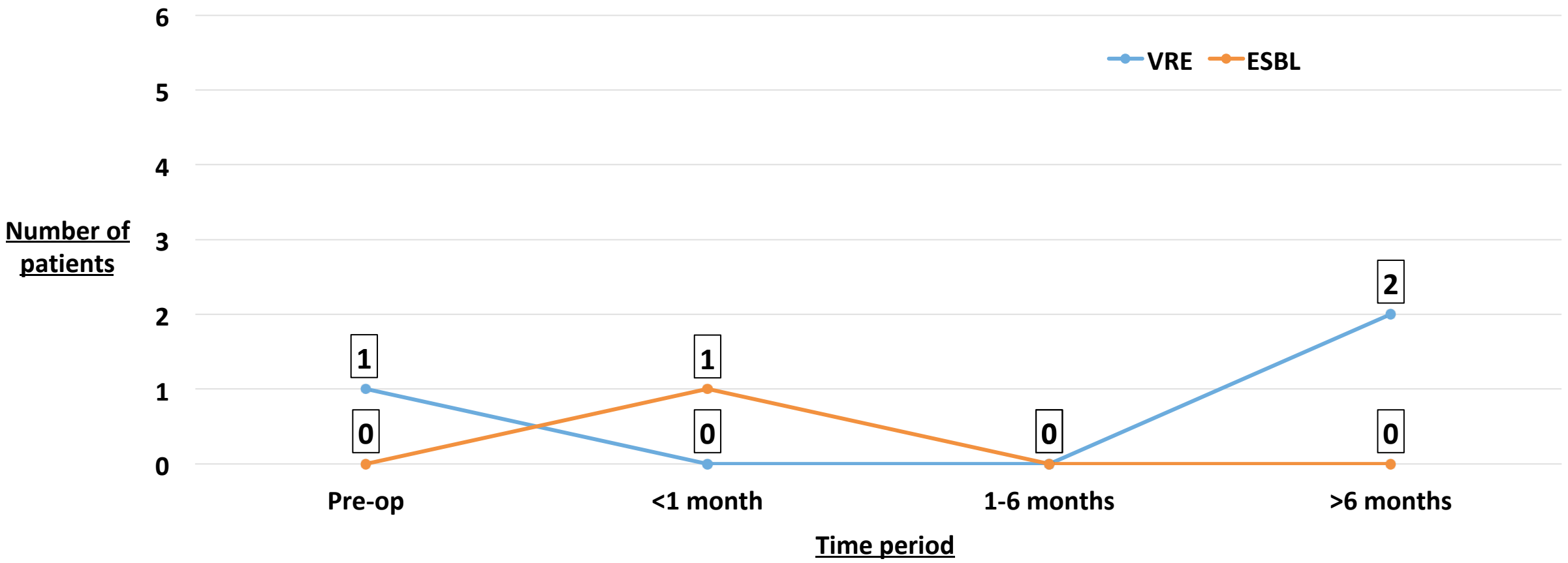
Results - Bacterial (1 – Total)



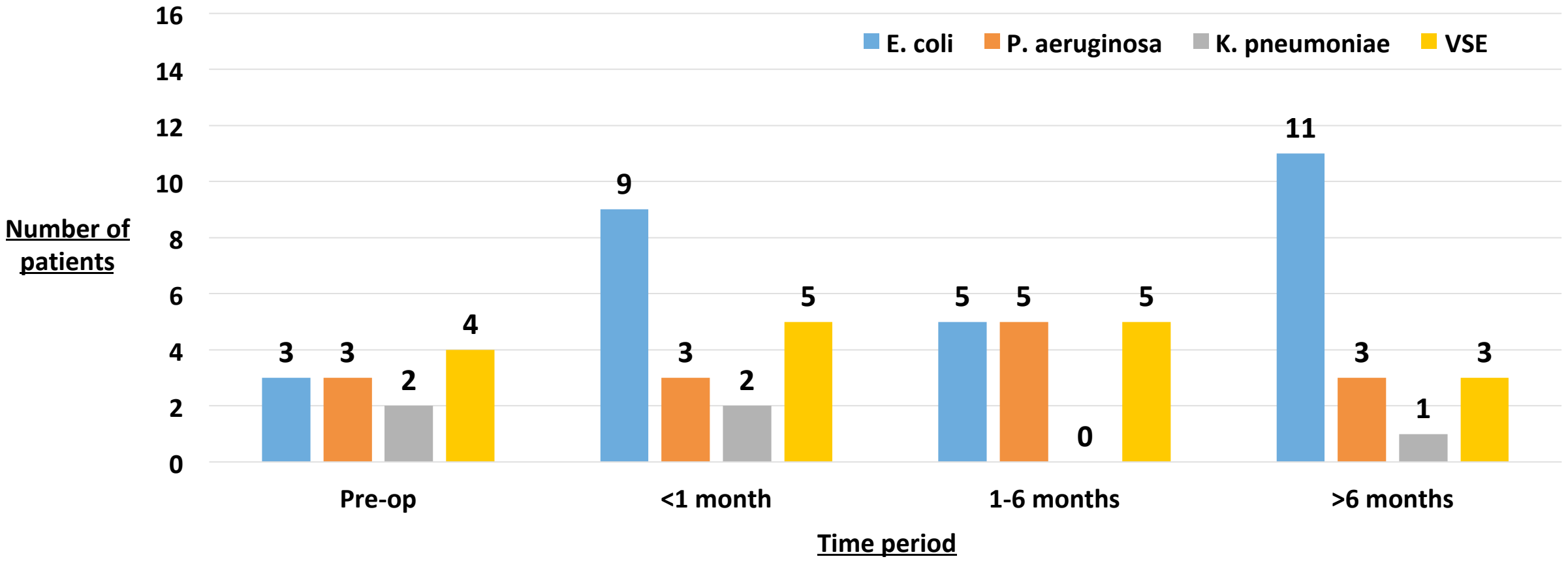
Results – Bacterial (2 – Resistant, Non-blood)



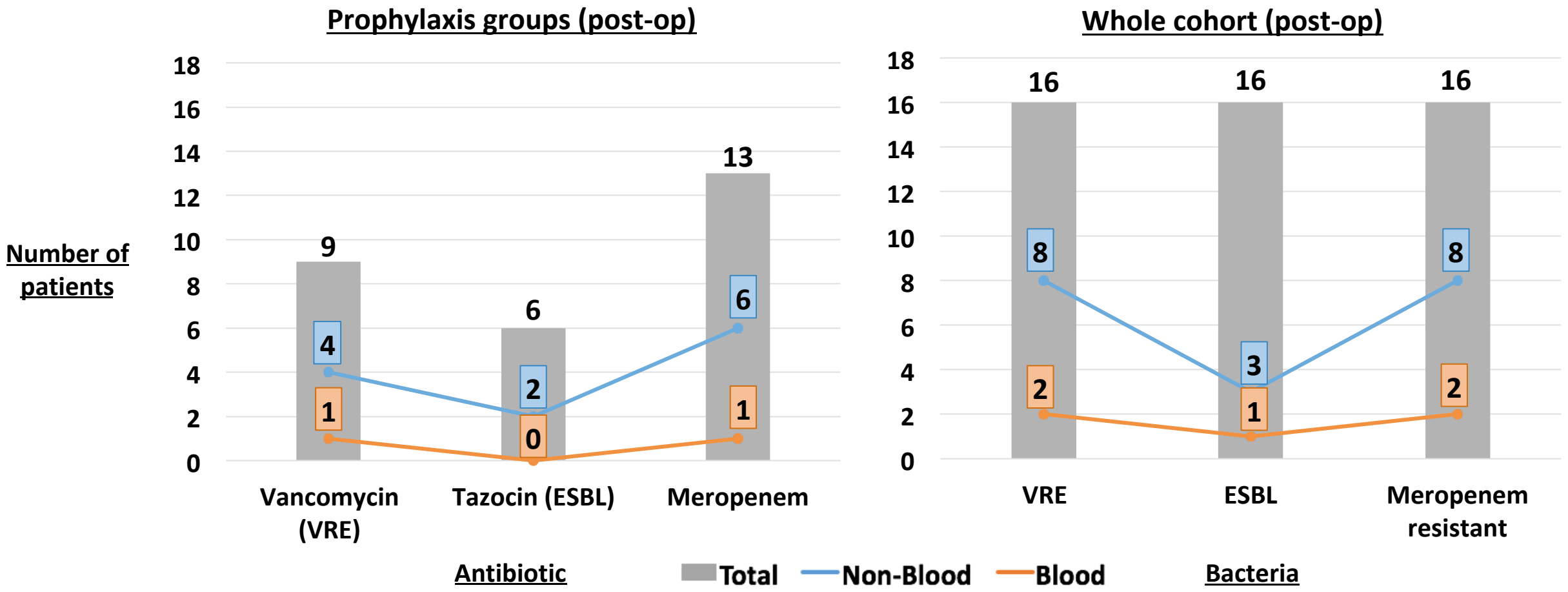
Results – Bacterial (3 – Resistant, Blood)



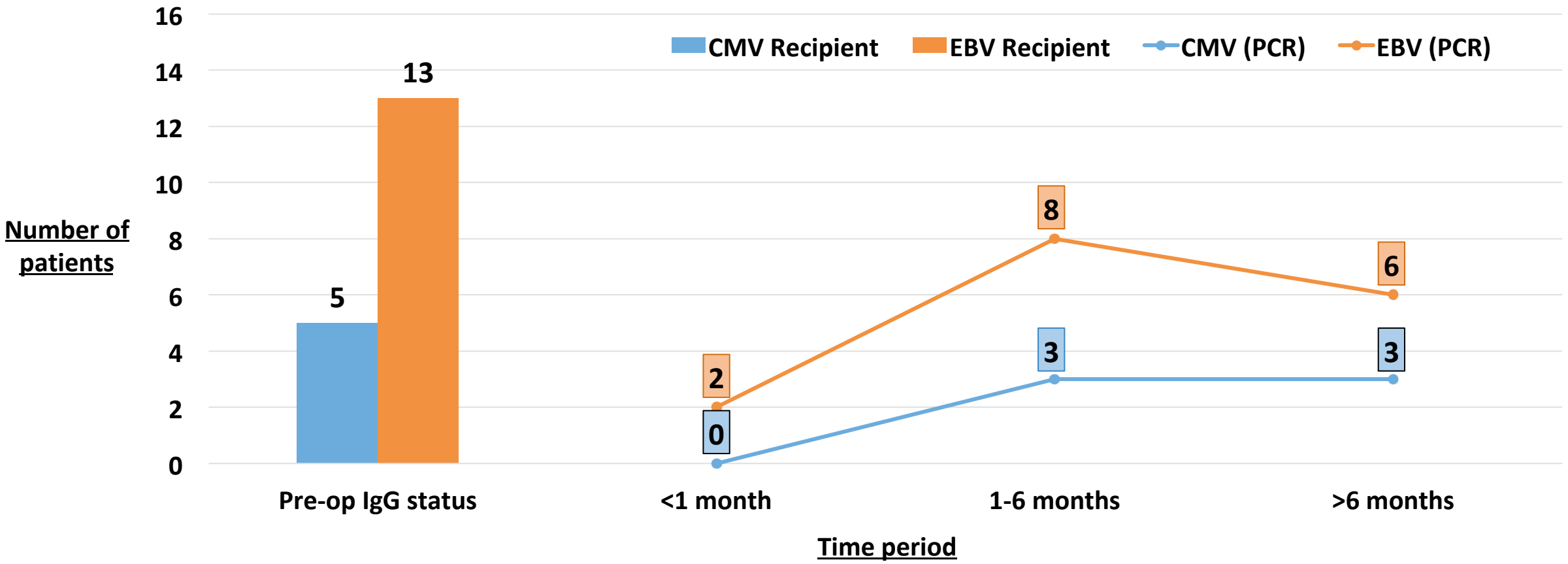
Results – Bacterial (4 - Non-resistant, non-blood)



Results – Bacterial (5 - Prophylaxis)

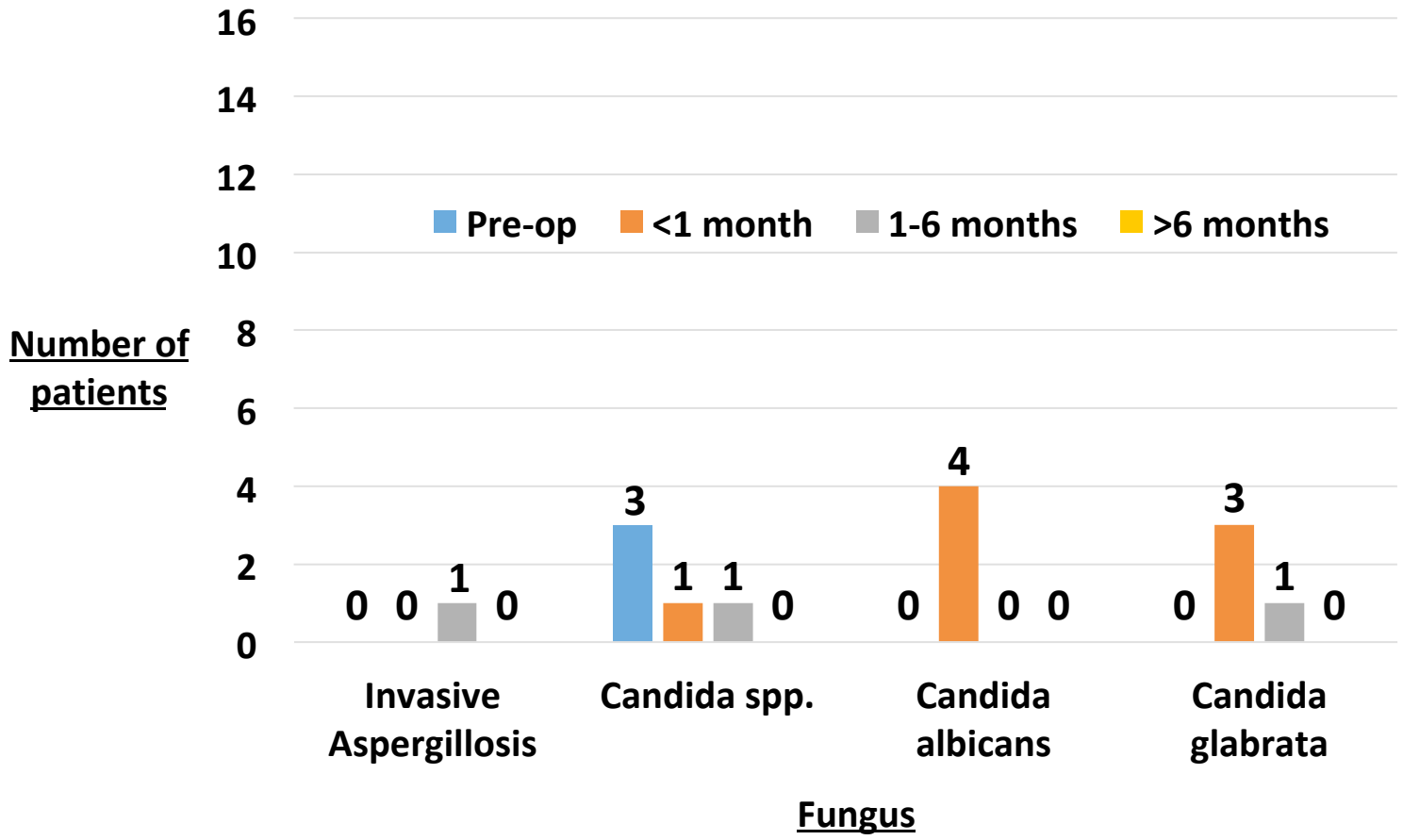


Results – Viral (Pre-op status, post-op viral loads)



Results – Fungal (Non-blood)

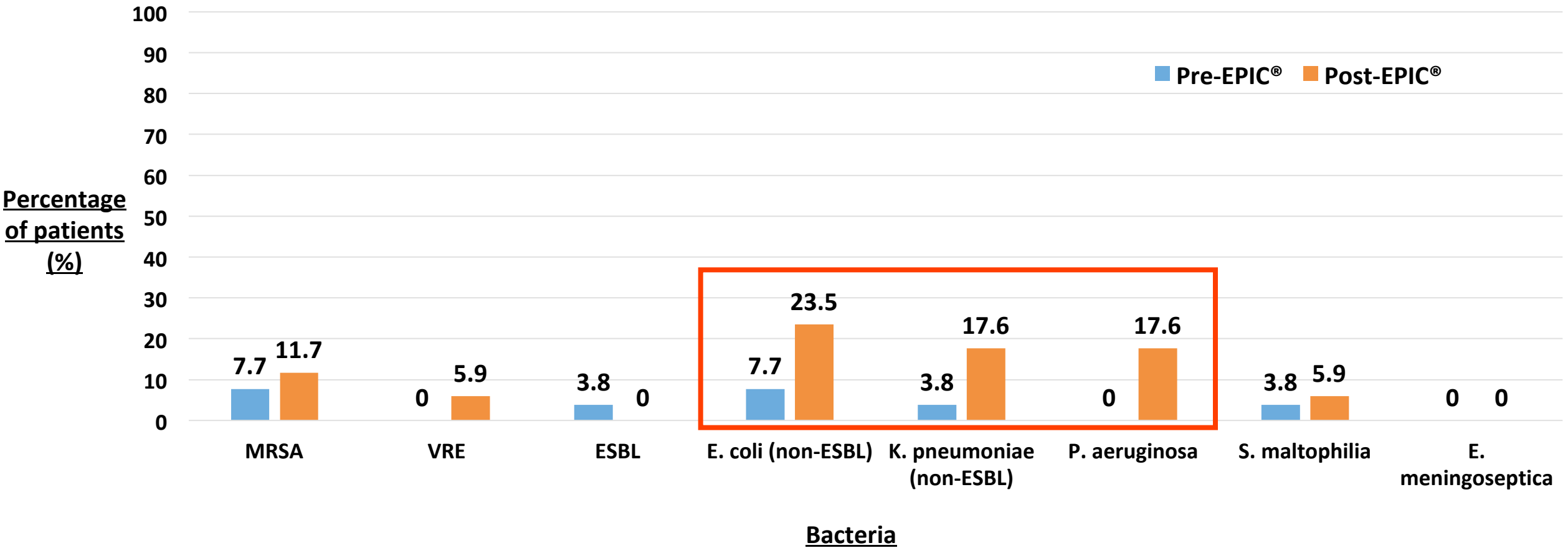
- One patient (with CF) had **Invasive Aspergillosis**
  - Isolated **in blood** from Pre-op and 1-6 months periods
  - Had **non-blood** isolate in 1-6 months period
  - Galactomannan positive in serum and BAL
- **Not isolated at any point**
  - PCP
  - Mucormycosis
  - Cryptococcus
  - Toxoplasma (parasite)



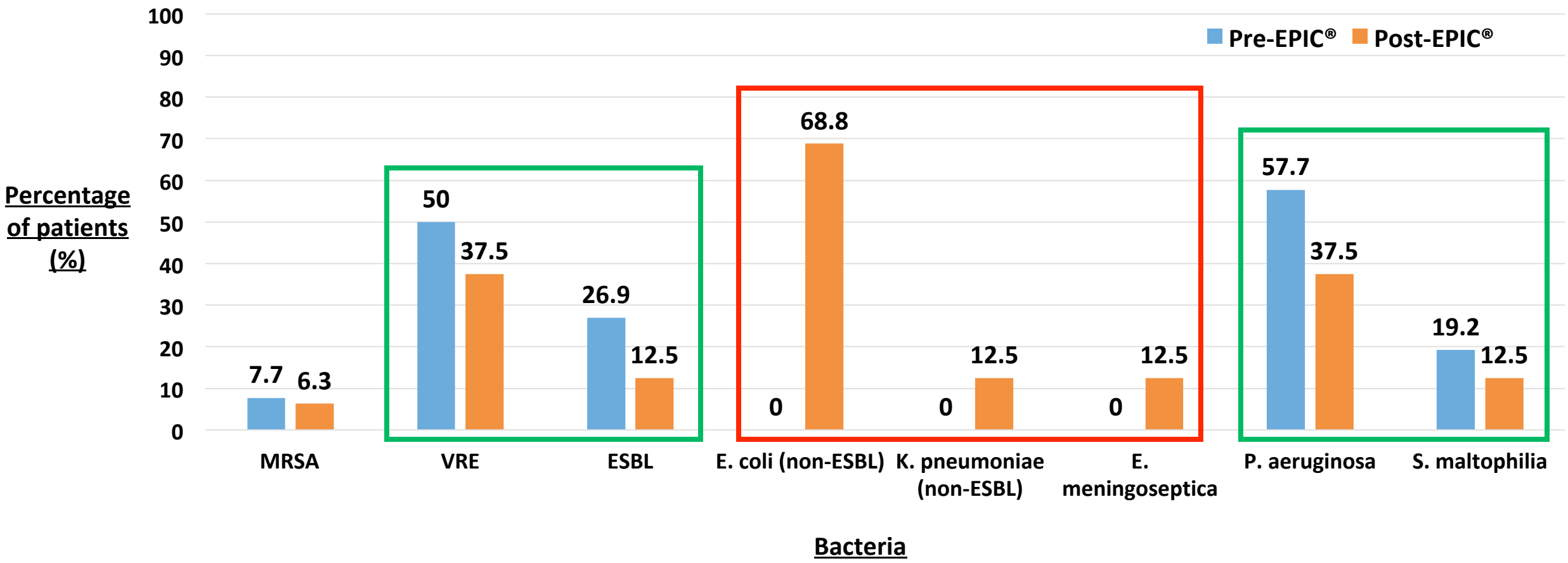
Results - Comparison with 'Pre-EPIC®' data

- 2006-2012
- 26 patients in total (7 years)
- Fewer MVT done per year than currently
- 'Pre-EPIC®' data not stratified in terms of 'Blood' or 'Non-blood'
- Classified only into Pre-op and Post-op
  - Post-op period: 3 months, not further stratified
- Proxy for looking at effects of change in prophylaxis regime

Results - Pre-op comparison



Results - Post-op comparison

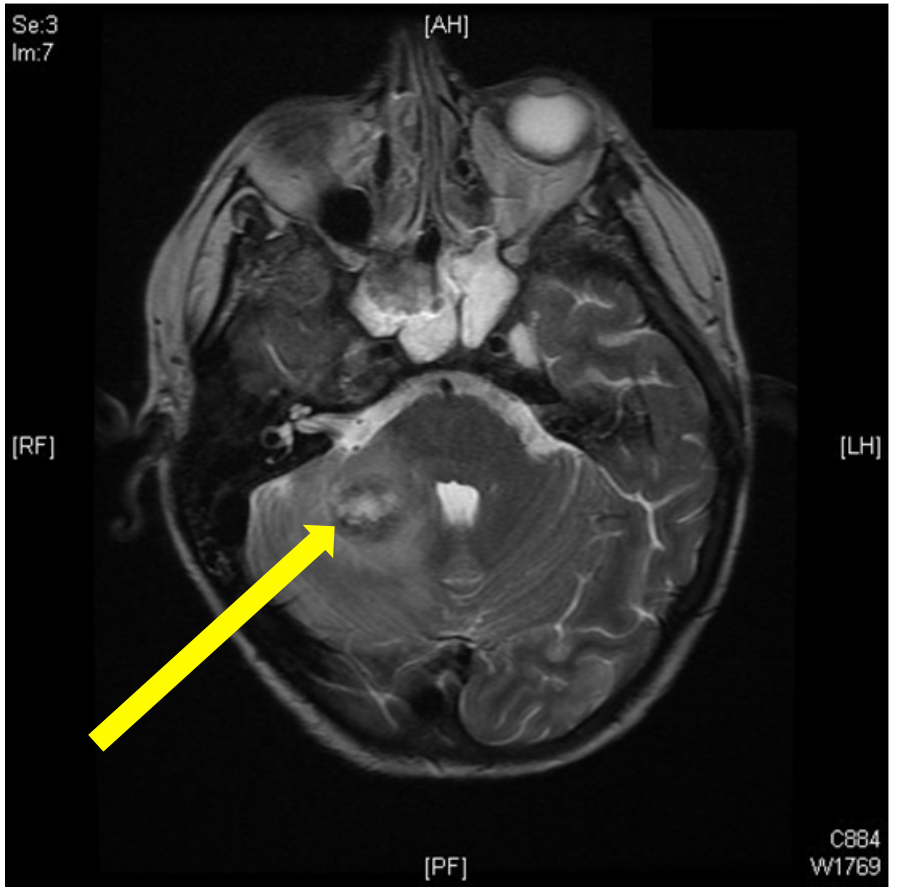


Results – Pre-EPIC® fungal data

- Antifungal prophylaxis didn't change
- Pre-EPIC® cases:

1. One case of invasive Aspergillosis
   - Fluconazole prophylaxis
   - Acute rejection + GvHD
2. One case of invasive Mucormycosis
   - Micafungin prophylaxis
   - GvHD

- Both Ambisome intolerant



Conclusions (1)

- *P. aeruginosa*, VSE, VRE, *E. coli* (non-blood) prevalent post-op
  - *E. coli* and VSE develop within 1 month post-op, *E. coli* also come up >6 months post-op
  - VRE and *P. aeruginosa* peak at 1-6 months
- ESBLs and CPEs not a major problem (currently!)
- VRE:
  - Isolated in blood (>6 months in 2 patients)
  - Similar culture positive rates whether on Vancomycin prophylaxis or not
- Large number of EBV viraemias (typically >1 month post-op)
  - With 3 primary EBV viraemias

Conclusions (2 - Impact of change in prophylaxis)

- Increased number of patients:
  - *K. pneumoniae* (non-ESBL)
  - *E. coli* (non-ESBL)
  - *E. meningoseptica*

- Decreased number of patients:
  - VRE
  - ESBL
  - *P. aeruginosa*
  - *S. maltophilia*

Limitations

- No access to paper notes, EPIC® recently introduced before our data set
  - Sometimes limited pre-op data available
  - Gap in data in 2013 and 2014
- Single centre
- Small sample size with high mortality rate
- Some mismatch in pre-EPIC® and post-EPIC® categorisation
- Influence of length of hospital stay and co-morbidities uncertain

Future work

- Evaluating relationship of co-morbidity data with infection rates
- Comparing infection outcomes in full vs. modified multi-visceral transplants and in patients with different indications for MVT
- Comparing MVT infection rates with those after standard Tx
- Correlation between infection rates and rejection, PTLD and mortality
- Correlation between stay in hospital (particularly in ICU) and infection rates
- Looking at other pathogens (e.g. coagulase negative Staphylococci)
- Chasing up data from MVT that took place in 2013 and 2014

Acknowledgements

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Many thanks for listening!

Any questions?

References

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