

# Antimicrobial Prophylaxis for Dialysis Catheter Insertion: Does the Infection Data Support It?

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## INTRODUCTION

Permanent tunnelled haemodialysis catheters offer many benefits, including quick and painless connection to dialysis, however compared to arterio-venous fistulas they confer a higher risk of infection. The Kidney Disease Outcomes Quality Initiative (KDOQI) guidelines suggest that the incidence of tunnelled haemodialysis catheter-related infection (CRI) should be less than 10 and 50 percent at 3 and 12 months, respectively. Manipulation or exchange of dialysis catheters under interventional radiology guidance in our institution has traditionally been performed without any peri-procedural antimicrobial prophylaxis.

We reviewed all bloodstream infections in patients undergoing dialysis catheter procedures to ascertain whether a protocol for antimicrobial prophylaxis was indicated.

## METHODS

We reviewed the electronic records of nephrology patients undergoing interventional radiology procedures (tunnelled venous catheter insertion, removal, or exchange) over a period of just over one year September 2019-2020.

We examined all bloodstream infections occurring in these patients over the same time period, and each positive blood culture occurring in the post-procedure period was analysed to determine if a causal or temporal link could be made to the procedure

## RESULTS

There were 115 interventional radiology procedures carried out between September 2019 and September 2020 on 82 nephrology patients. Procedure details are listed in Figure 1.

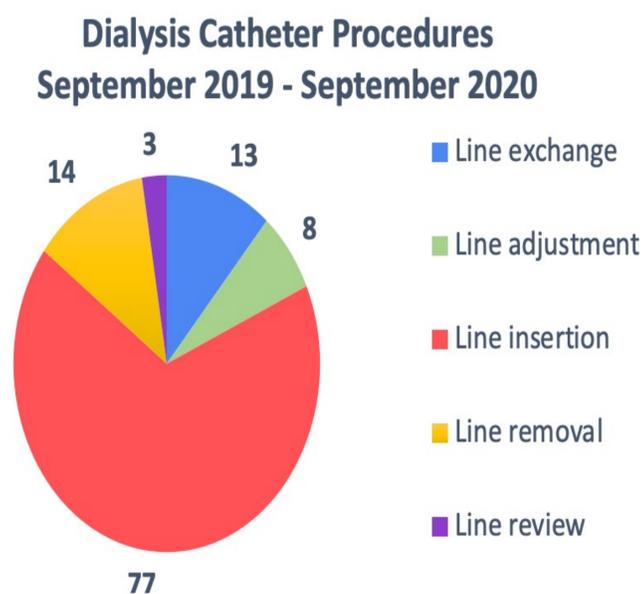


Figure 1: Dialysis catheter procedures performed in MMUH on 82 Nephrology patients between 2/9/19 - 14/9/20

There were eight positive blood cultures taken in the post-procedure period amongst seven patients, with six of these cultures related to line insertion procedures, and one each related to line exchange and line removal procedures. Isolates identified are demonstrated in Figure 2.

### Positive blood cultures post-interventional procedure - isolates identified

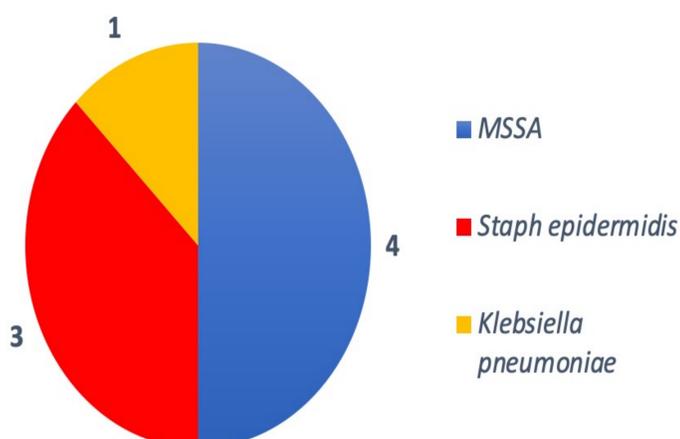


Figure 2: Positive blood cultures on Nephrology patients post-interventional dialysis catheter procedure, by isolate identified. (n=8)

Just two positive blood cultures (25%) were deemed to be temporally related to the interventional dialysis catheter procedure when each positive culture was analysed:

#### Case 1:

MSSA in 5 sets of blood cultures, first positive 1 day post line exchange – line subsequently removed.

#### Case 2:

*Klebsiella pneumoniae* in 2 sets of blood cultures, first positive 4 days post line insertion – line subsequently removed

## DISCUSSION

Prior systematic reviews have found that antimicrobial locks and the use of exit-site antimicrobials are useful measures in the reduction of CRIs, whereas peri-operative systemic antimicrobial administration has not been found to be beneficial.

There was a low number of positive blood cultures relating to dialysis catheter procedures in our institution, with just one bloodstream infection over a one-year period likely to have been prevented by the routine use of vancomycin as peri-procedural prophylaxis. These results are valuable to inform antibiotic prophylaxis guidelines and promote antimicrobial stewardship.

## REFERENCES

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