

PERITONEAL DIALYSIS IN MALTA

AN OVERVIEW OF PERITONITIS AND CATHETER-RELATED INFECTIONS OVER THE LAST FOUR YEARS

M A Grima,⁽¹⁾ A Borg Cauchi,^(1,2) J Gauci,⁽¹⁾ J Farrugia,⁽¹⁾ M Borg⁽³⁾

1. Department of Medicine, Mater Dei Hospital, Malta
2. Department of Nephrology, Mater Dei Hospital, Malta

3. Head Department of Infection Control & Sterile Services, Mater Dei Hospital, Malta and University of Malta



Introduction and Objectives

Infections are still a leading cause of morbidity and mortality in peritoneal dialysis (PD) patients.

This was a prospective study to analyse rates and microbiology of PD related infections over four years.

Methods

This was a prospective study analysing all patients undergoing PD during 2013-2016 at the only dedicated PD centre in Malta, at Renal Unit, Mater Dei Hospital.

The aim was to analyse the rates of infections and microbiological data of PD peritonitis and catheter-related infections.

The International Society of Peritoneal Dialysis Guidelines [1-4] were used to define peritonitis, catheter-related infections and rates. Microbiological data was analysed.

Results (1)

The prevalence of patients undergoing PD during 2013-2016 was 91, 80, 126, 117 respectively.

Patient years at risk were 85.80, 85.25, 89.71, 83.7 respectively.

Median ages ranged between 60.4-66 years. There was male predominance (61-67%).

Around half used APD (51%) whereas 21% underwent assisted PD.

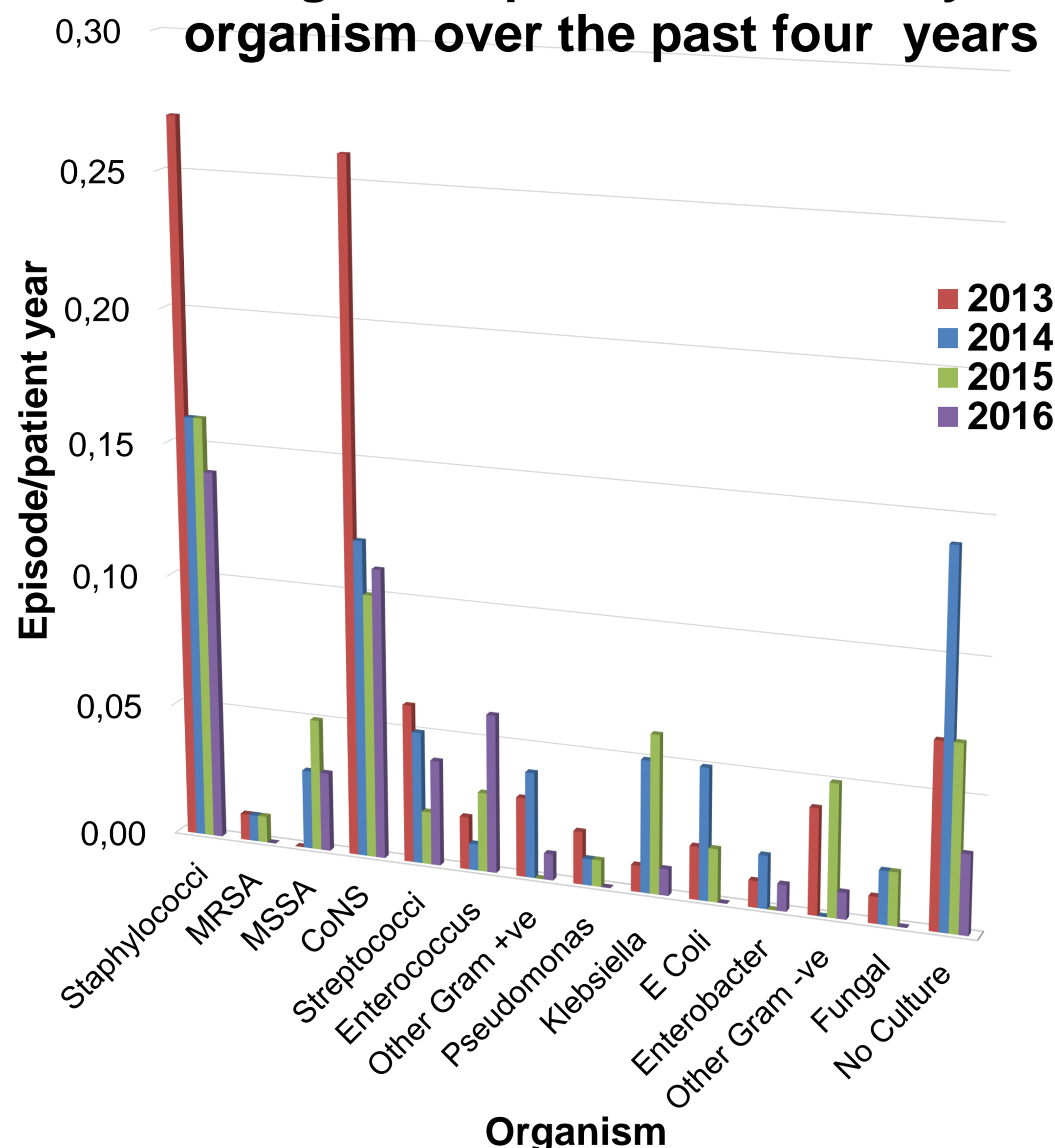
Incidence of diabetes mellitus was 45.3% (41.8-50), hypertension 79.3% (73.8-84.6) and cardiovascular disease 34.2% (33.8-35).

Results (2)

There were 41, 36, 33, 28 patients per respective year having peritonitis.

PD peritonitis rates were 0.57, 0.54, 0.43 and 0.39 episodes/patient for 2013, 2014, 2015, 2016 respectively (Fig.1).

Fig. 2. PD peritonitis rates by organism over the past four years

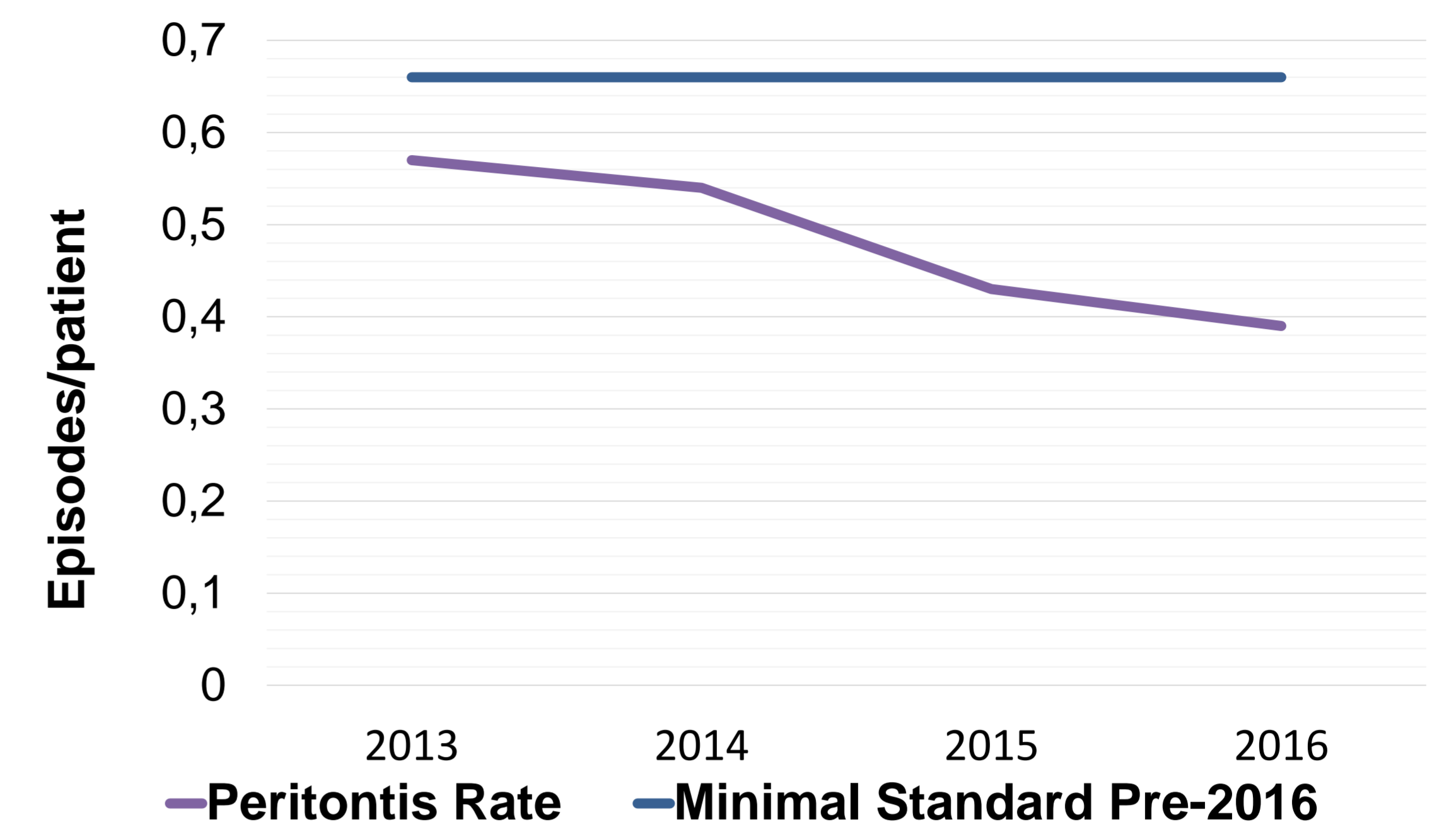


Overall, there was a marked predominance of Gram-positive peritonitis, mainly *Staphylococcal*. There was a reduction of coagulase-negative *Staphylococcus* (CNS) peritonitis from 0.26 episodes/patient in 2013 to 0.11 episodes/patient in 2016. Methicillin-resistant *S. aureus* (MRSA) peritonitis decreased from 0.01 episodes/patient in 2013 to nil in 2016.

Amongst the G-negative peritonitis, *Escherichia coli* and *Pseudomonas* were the salient organisms in 2013 at 0.02 episodes/patient. *E. coli* and *Klebsiella* in 2014 at 0.05 episodes/patient. *Klebsiella* at 0.05 episodes/patient in 2015. In 2016, *Enterobacter* and *Klebsiella* were predominant at 0.01 episodes/patient. Fungal peritonitis rate was 0.01, 0.02, 0.02, nil episodes/year respectively.

There were no *Pseudomonas* and fungal peritonitis in 2016 (Fig.2).

Fig. 1. Peritoneal Dialysis Peritonitis Rates over the last four years



Catheter-related infections

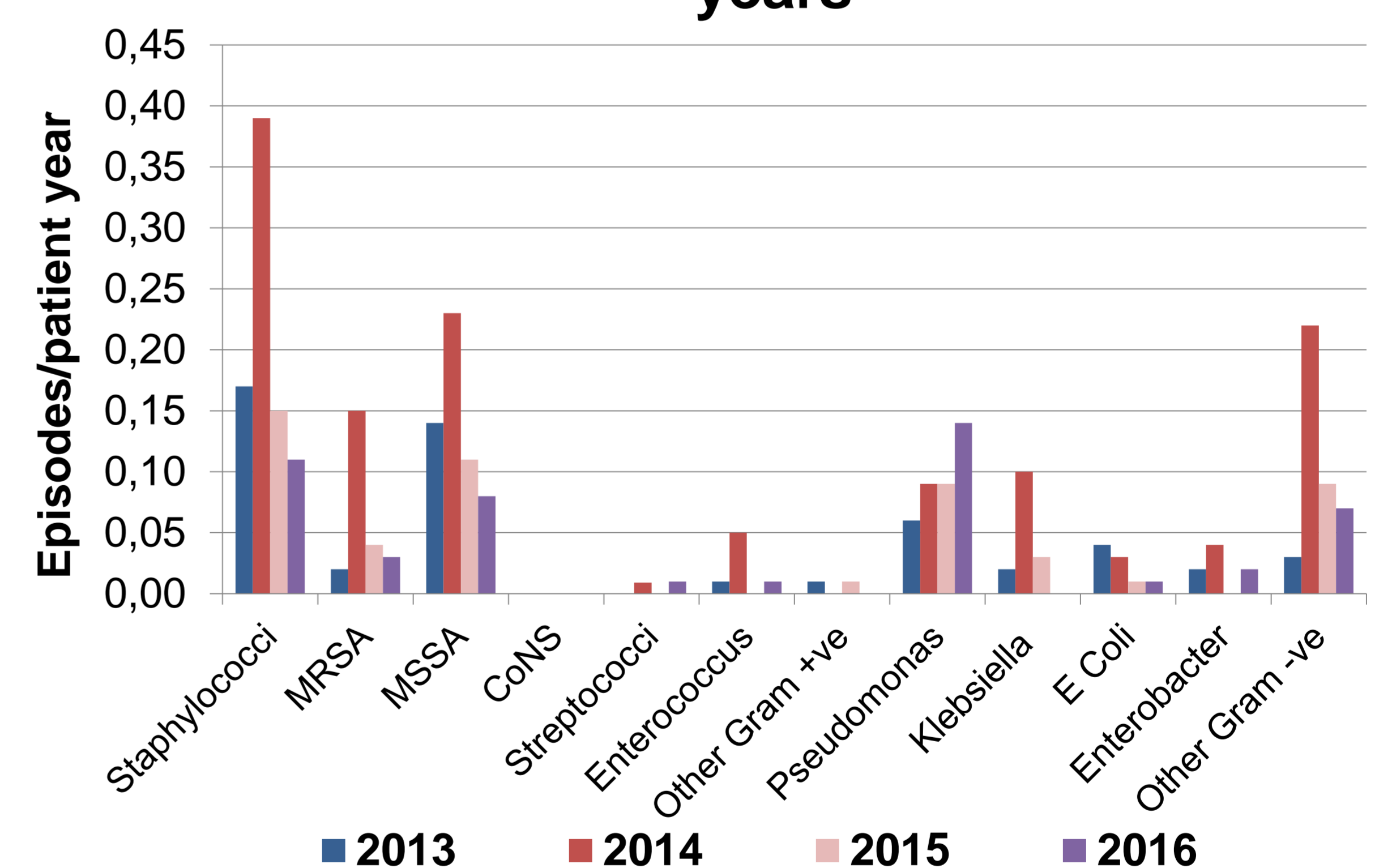
There was also male predominance at 57.7, 60, 60.7, 59.4% respectively. Median ages were 57.7, 58.3, 58.4, 67.5 years respectively.

Catheter-related infection rates were 0.35, 0.91, 0.37 and 0.38 episodes/patient for 2013, 2014, 2015, 2016 respectively. There was a higher incidence of recurrent infections in 2014 but none in 2016.

G-negative organisms accounted for 54% of all CRI, predominantly *Pseudomonas aeruginosa* at 0.06, 0.09, 0.09 and 0.14 episodes/patient/year respectively.

G-positive infections were mostly due to *Staphylococcus aureus*, whereas MRSA rate was 0.02, 0.15, 0.04 and 0.03 episodes/patient year respectively (Fig. 3).

Fig. 3. Catheter-Related Infections rates by organism over the past four years



Conclusions

Our study showed a marked improvement in PD peritonitis and CRI rates over the last four years. The rates for CNS peritonitis have decreased, with no episodes of MRSA, *Pseudomonas* or fungal PD peritonitis in the last year. This continuous quality improvement programme was possible with an active inter-disciplinary approach between the Nephrology and Infection Control Departments.

References

- Li PK, Szeto CC, Piraino B, Bernardini J, Figueredo AE, Gupta A, et al. Peritoneal dialysis-related infections recommendations: 2010 update. *Perit Dial Int* 2010; 30:393-423
- Beth Piraino et al. ISPD Position Statement On Reducing The Risks Of Peritoneal Dialysis-Related Infections. *Perit Dial Int* 2011, Vol. 31, pp. 614-630 doi: 10.3747/pdi.2011.00057
- Piraino, B, Bailie, GR, Bernardini, et al. Peritoneal dialysis-related infections recommendations: 2005 update. *Perit Dial Int* 2005; 25(2):107
- Li Philip Kam-Tao, Cheuk Chun Szeto, Beth Piraino, Javier de Arteaga, Stanley Fan, Ana E. Figueired, Douglas N. Fish, Eric Goffin, Yong-Lim Kim, William Salzer, Dirk G. Struijk, Isaac Teitelbaum, David W. Johnson. ISPD Peritonitis Recommendations: 2016 Update on Prevention and Treatment. *Perit Dial Int* September-October 2016 vol. 36 no. 5, 481-508

Acknowledgements

- M Bonavia
- R Formosa
- D Lo Giudice
- Renal Unit, MDH
- Infection Control Committee

