



Exploring appropriate utilisation of ambulatory care for pyelonephritis

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Background

Pyelonephritis is an infection involving the renal pelvis and paraenchyma¹. Current national guidance^{2,3} advises clinicians to send a mid-stream urine (MSU) sample before antimicrobials are started, which antimicrobial to use, duration of treatment course and admission criteria.

Pyelonephritis is a common infection in patients with relatively few co-morbidities. Therefore, Ambulatory Care could potentially be a safe and cost effective setting in which to treat these patients.

Aims

- To evaluate clinical practice and adherence to established protocols in the diagnosis and treatment of pyelonephritis
- To evaluate the efficacy of ambulatory care in treating these patients as a safe and cost-effective alternative to hospital admission

Method

A retrospective single centre observational study was undertaken, identifying patients with pyelonephritis who attended ambulatory care at a central London teaching hospital between May-July 2017 inclusively. Clinical and laboratory data were analysed.

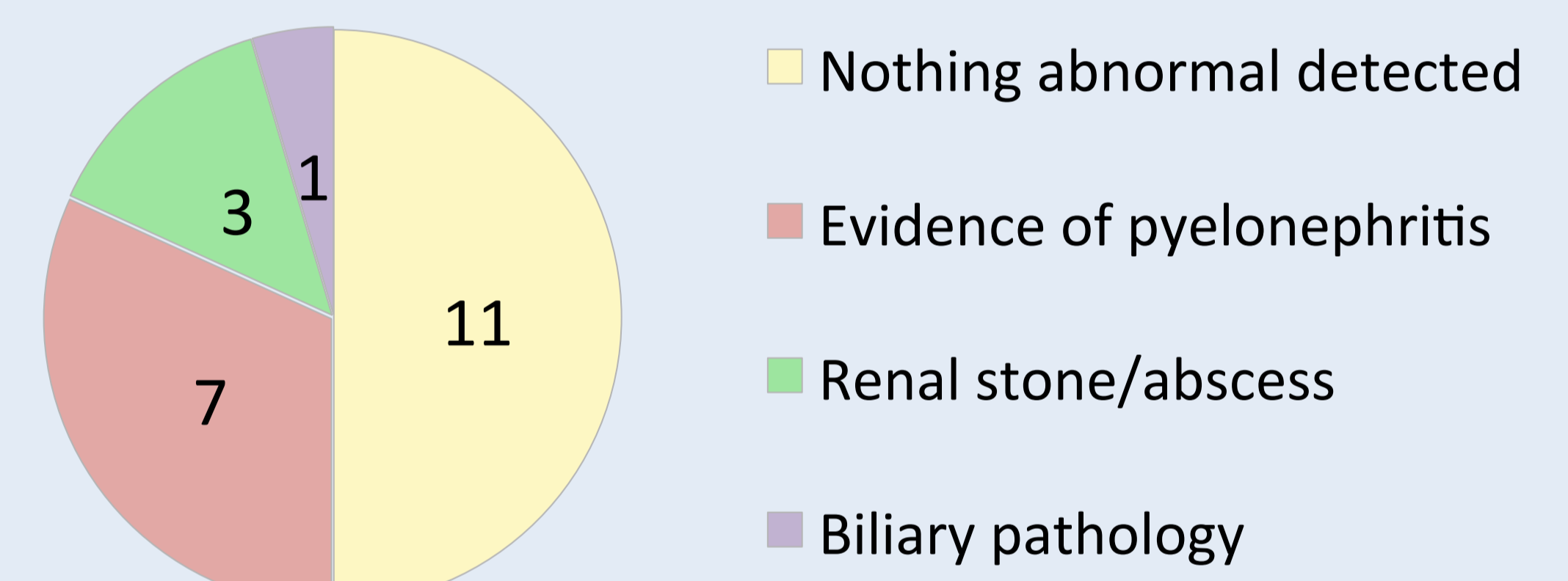
Results

Demographics

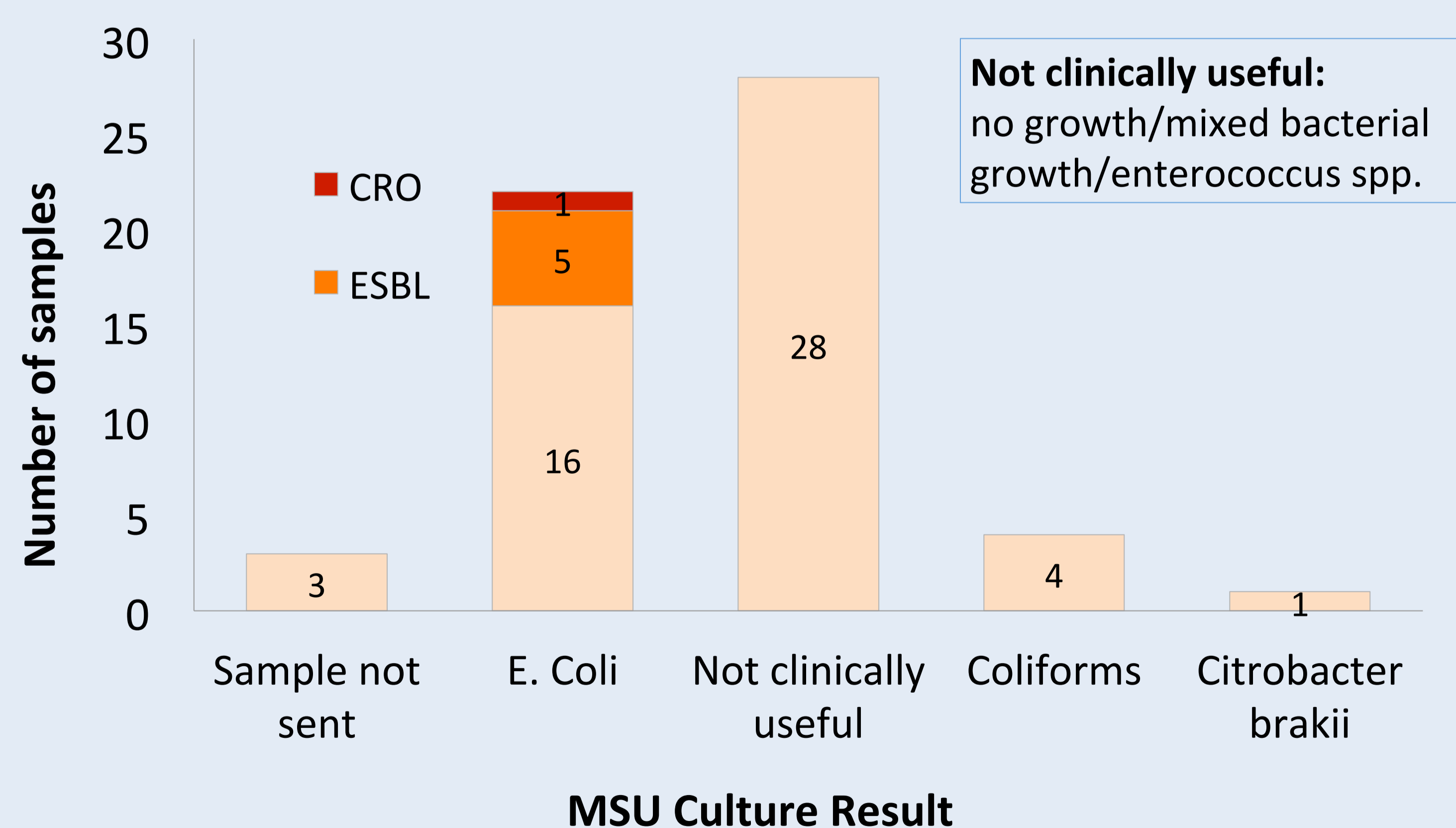
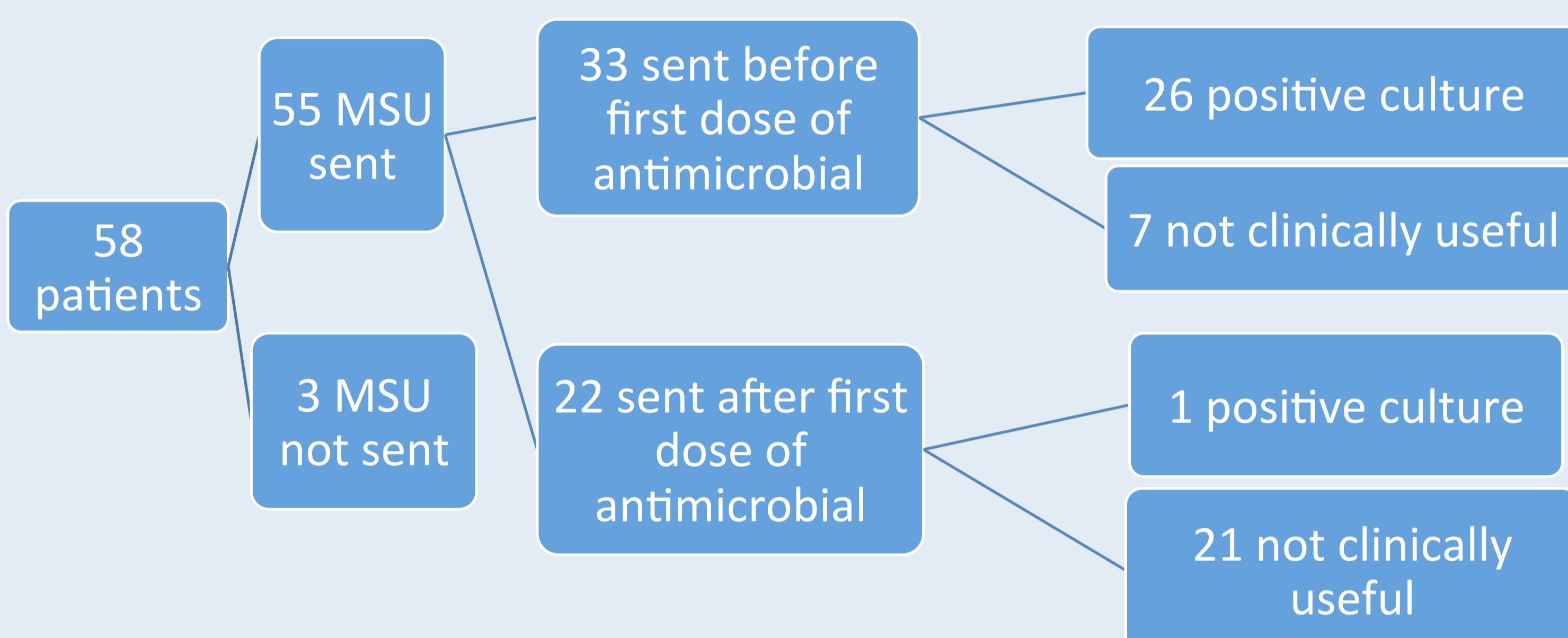
- Total 58 patients, aged 16-89 years (mean 45.2 years), 82.8% female
- Patients were referred to ambulatory care from: ED (48%), AAU (36%), UCC (7%), another ward (5%), GP (2%) or directly from outpatients (2%).

Imaging

- 22/58 patients had imaging during the course of their treatment, the majority (15) having USS KUB. Imaging results of these 22 patients are shown below:



Pathology



Antibiotic Use

- 74% of patients were given appropriate antimicrobials according to either local guidelines or to organism sensitivities
- Mean antimicrobial duration was **12.3 days**, mode was 10 days

Ambulatory Care vs. Hospital Admission

- 57% patients were **not** admitted to hospital, but managed in ambulatory care alone. **Total of 93 inpatient bed days.**
- Length of inpatient stay ranged from 0-13 days, **mean 1.6 days**
- 11 patients stayed in hospital >2 days due to more complicated disease course
- 76% patients received IV antimicrobials in ambulatory care
- Mean IV duration in ambulatory care was **3.8 days**
- Total no. of days ambulatory care administered antimicrobials was **218 days**
- 3/58 patients re-presented within 31 days of discharge from ambulatory care due to i) non-compliance, ii) complication with renal calculi and iii) recurrent ESBL infection
- Mortality was zero. Antimicrobial adverse effects were zero. Intravenous access adverse events were zero. Zero cases of *Clostridium difficile*.

References

- NS Sheerin. **Urinary Tract Infection**. *Medicine*, 2015; 43: (435-439)
- (Online resource) Clinical Knowledge Summaries: **Acute Pyelonephritis**. National Institute for Health and Care Excellence, 2013
- (Online resource) Scottish Intercollegiate Guidelines Network: **Management of suspected bacterial urinary tract infection in adults: a national clinical guidelines**, 2012

Abbreviations: ED, Emergency Department; AAU Acute Assessment Unit; UCC Urgent Care Centre; ESBL Extended Spectrum beta lactam; CRO Carbapenem Resistant Organism

Conclusions

- Pyelonephritis can be safely managed in an ambulatory care setting, saving high numbers of bed days
- To optimise MSU utility, these must be sent prior to first dose of antimicrobials
- Variation in antimicrobial duration for pyelonephritis should be standardised, but whether at 14 or 10 days to minimise treatment failure remains unclear

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