

Audit of maternity and microbiology flowchart guidance for management of UTI in pregnancy

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Introduction

The microbiology and maternity department of Newcastle Hospitals have established local antenatal guidance concerning the diagnosis and treatment of urinary tract infection (UTI) in pregnancy. Two flowcharts were created for use in maternity (Figure 1) and microbiology (Figure 2) after departmental discussion. The aim of the audit was to evaluate adherence with local guidance and to determine any areas for improved practice if indicated from findings.

Figure 1 Antenatal Diagnosis of UTI Flowchart

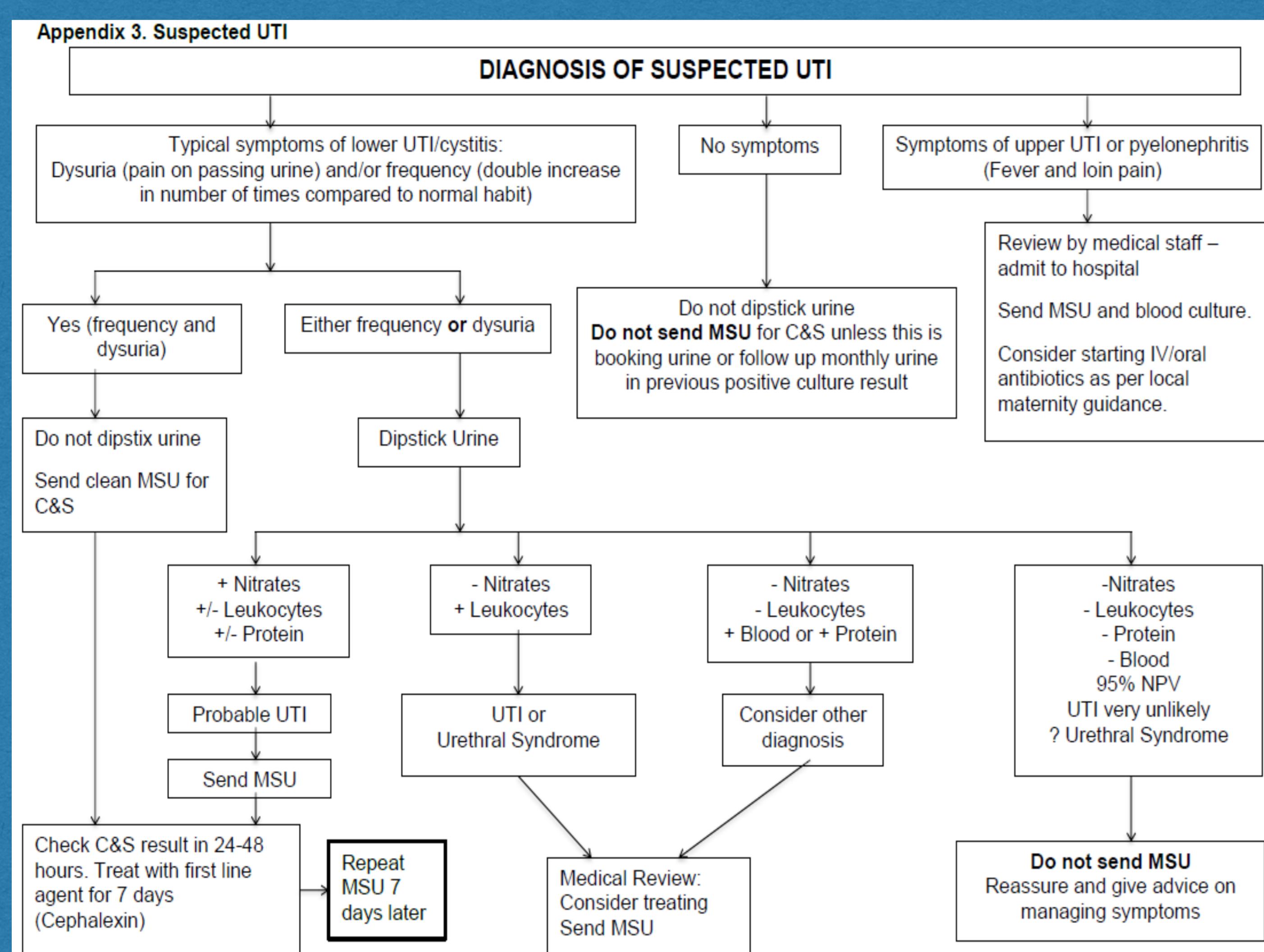
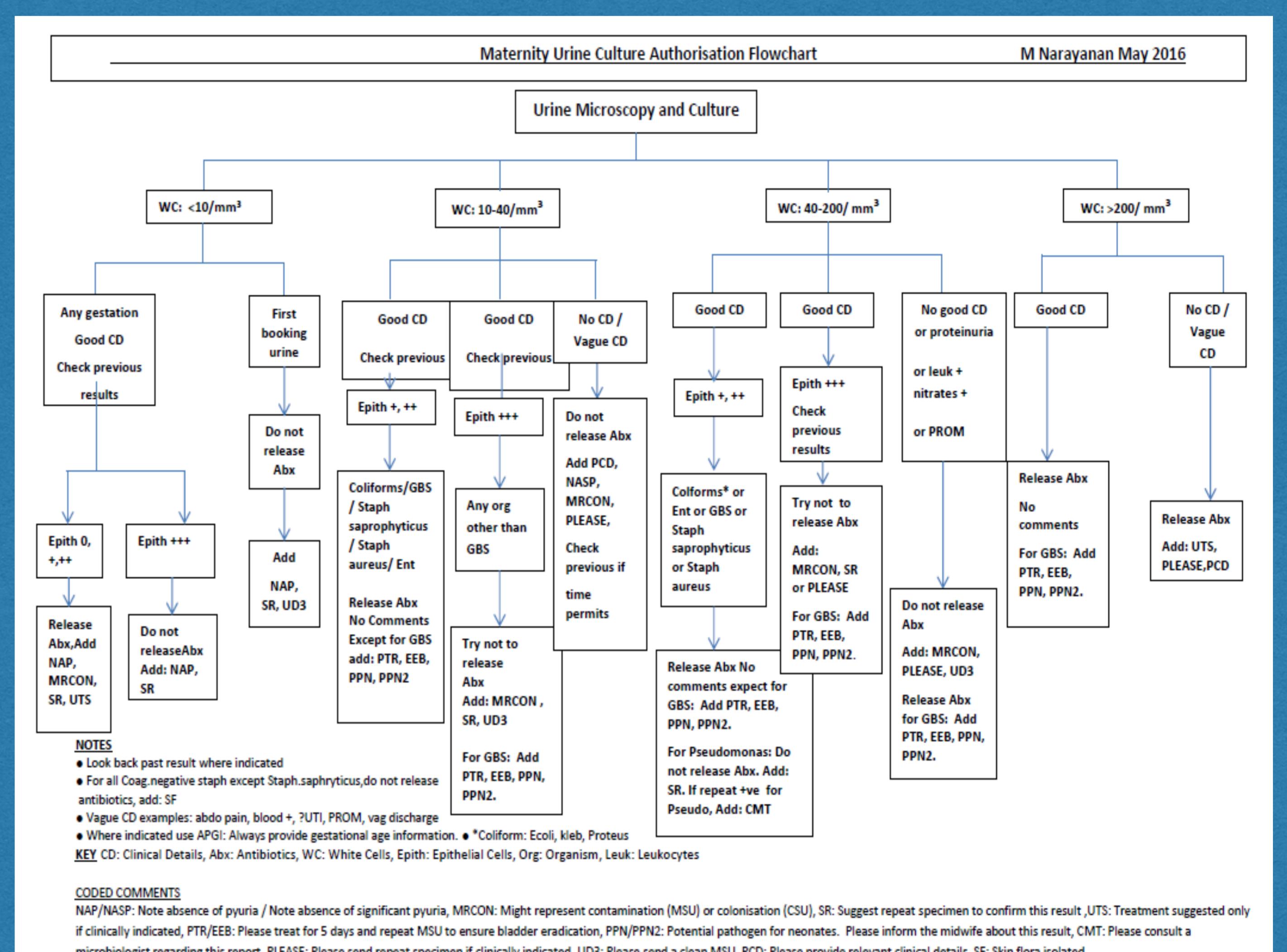


Figure 2 Microbiology Authorisation flowchart



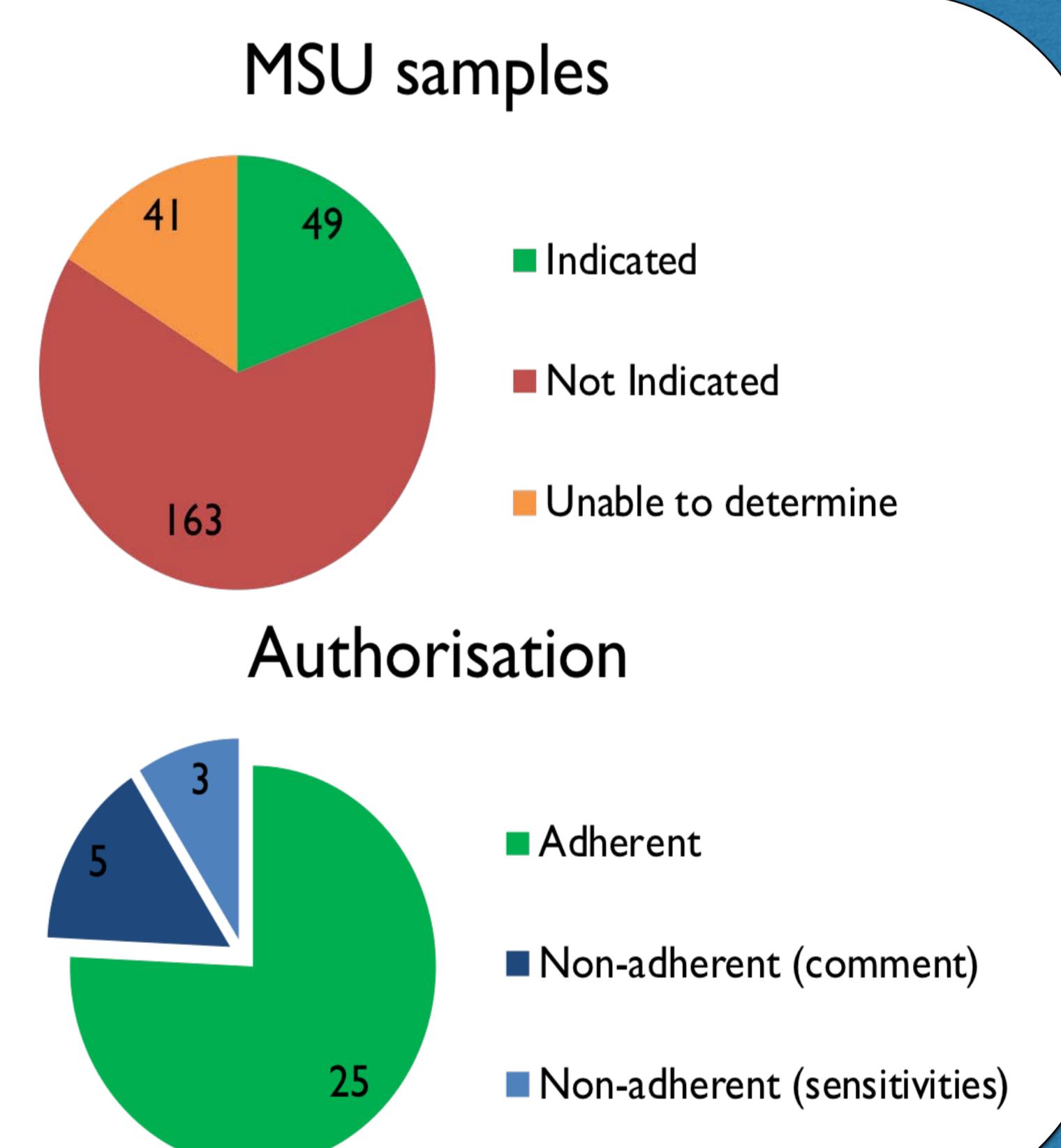
Methods

Using the microbiology laboratory information system, data was collected retrospectively for all patients from whom midstream urine (MSU) sample was sent from inpatient or outpatient antenatal services from February to May 2017. Information concerning symptoms, urine dipstick results, antibiotic treatment and follow up of MSU results was gathered from the medical notes, and microbiology reporting of samples was also examined.

Results

121 patients had a MSU sent during the study period. These 121 women had a total of 253 MSUs sent throughout their pregnancies. Out of 253 MSUs 49 (19.4 %) were indicated in accordance to local guidance, 163 MSUs (64.4 %) were not indicated and 41 (16.2 %) had incomplete documentation to evaluate if they were indicated or not.

64 (25.3 %) of the MSU samples sent were positive and 189 (74.7%) were negative for bacterial culture. 14 out of 121 (11.6%) patients received antibiotics with a total of 33 antibiotic episodes. Of the 33 antibiotic episodes the microbiological reporting adhered to local guidance in 25 cases (75.8%), in the 8 cases of non-adherence this was either due to the lack of interpretive comment (5 cases) or inappropriate release of antibiotic sensitivities (3 cases).



Discussion

The study showed a large numbers of inappropriate MSUs (64.4%) being sent in pregnancy, which leads to unnecessary processing and could lead to inappropriate treatment being initiated. Increased education, familiarity and compliance with guidance are required to improve this. Although during this study period a large number of inappropriate sample were sent, we have seen, over a longer time scale a reduction in total MSU samples being sent from Maternity assessment to microbiology. It has reduced from an average of 9942 total samples per year (3yr period 2012-2014) compared to an average of 7134 total samples per year (3yr period 2015-2018).

Conclusions

Implementation of flowchart guidance provides a way to implement quality improvement in the management of UTI in pregnancy. Increased education, familiarity and compliance with such guidance are required to improve outcomes. We plan to re-audit in 2019. This is a collaborative project with maternity services and the present and future results will be shared with both directorates to raise further awareness.