

Supplementary Table 1. AUC-ROC and highest Youden Index for continuous variables

| | Abnormalities on ultrasound, DMSA and/or MCU (n = 24) | | | Abnormalities on ultrasound (n = 17) | | | Abnormalities on DMSA (n = 13) | | | Abnormalities on MCU (n = 12) | | | Recurrent UTI (n = 32) | | |
|---|---|--------------------------|---------------------------------|--------------------------------------|--------------------------|---------------------------------|--------------------------------|--------------------------|---------------------------------|-------------------------------|--------------------------|---------------------------------|------------------------|--------------------------|---------------------------------|
| | AUC - ROC | Highest Youden Index (%) | Cut-off at highest Youden Index | AUC - ROC | Highest Youden Index (%) | Cut-off at highest Youden Index | AUC - ROC | Highest Youden Index (%) | Cut-off at highest Youden Index | AUC - ROC | Highest Youden Index (%) | Cut-off at highest Youden Index | AUC - ROC | Highest Youden Index (%) | Cut-off at highest Youden Index |
| Age at first UTI (days) | 0.40 | 3.20 | 78 | 0.46 | 12.9 | 80 | 0.48 | 14.3 | 80 | 0.55 | 34.2 | 78 | 0.45 | 7.0 | 88 |
| Maximum temperature (°C) | 0.54 | 12.6 | 39.0 | 0.54 | 13.6 | 39.1 | 0.61 | Nil | Nil | 0.73 | 36.0 | 38.8 | 0.55 | 17.6 | 39.2 |
| Duration of illness at presentation (days) | 0.49 | 2.9 | 6 | 0.46 | Nil | Nil | 0.47 | Nil | Nil | 0.51 | 8.3 | 5 | 0.46 | 1.7 | 6 |
| Interval between start of antibiotics and resolution of fever (hours) | 0.65 | 32.3 | 23 | 0.70 | 46.5 | 27 | 0.72 | 48.4 | 23 | 0.88 | 72.8 | 27 | 0.61 | 21.8 | 22 |
| CRP (mg/L) | 0.58 | 18.7 | 68.7 | 0.66 | 32.2 | 20.3 | 0.52 | 12.6 | 71 | 0.47 | 21.1 | 18.3 | 0.50 | 10.4 | 135.0 |
| TW on FBC ($\times 10^9/L$) | 0.57 | 20.4 | 14.1 | 0.57 | 19.7 | 14.6 | 0.52 | Nil | Nil | 0.53 | Nil | Nil | 0.50 | 9.7 | 24.1 |
| WBC on urinalysis (per uL) | 0.49 | 15.2 | 73 | 0.47 | 10.60 | 16 | 0.42 | Nil | Nil | 0.30 | Nil | Nil | 0.47 | 12.8 | 21 |

Abbreviations:

AUC-ROC: area under the receiver operating characteristic curve; CRP: C-reactive protein; DMSA: dimercaptosuccinic acid scan; E coli: Escherichia coli; FBC: full blood count; MCU: micturating cystourethrogram; TW: total white cell count; US KUB: ultrasound of the kidneys, ureters and bladder; UTI: urinary tract infection; WBC: white blood cells

Supplementary Table 2. Diagnostic characteristics of clinical parameters and investigation results with AUC-ROC >0.50 for the secondary outcome, abnormal DMSA and abnormal MCU

| Recurrent UTI | | | | | | |
|--|-------------|-------------|------|------|------|------|
| | Sensitivity | Specificity | PPV | NPV | LR+ | LR- |
| Maximum temperature $\geq 39.2^{\circ}\text{C}$ | 0.50 | 0.68 | 0.25 | 0.86 | 1.54 | 0.74 |
| ≥ 22 hours between start of antibiotics and resolution of fever | 0.63 | 0.59 | 0.25 | 0.88 | 1.54 | 0.63 |
| Bacteremia | 0.16 | 0.95 | 0.42 | 0.83 | 3.17 | 0.89 |
| Non-E coli | 0.44 | 0.83 | 0.36 | 0.87 | 2.56 | 0.68 |
| Abnormalities on DMSA | | | | | | |
| ≥ 23 hours between start of antibiotics and resolution of fever | 0.85 | 0.64 | 0.25 | 0.97 | 2.33 | 0.24 |
| Bacteremia | 0.08 | 0.94 | 0.17 | 0.88 | 1.38 | 0.98 |
| Non-E coli | 0.38 | 0.86 | 0.28 | 0.91 | 2.69 | 0.72 |
| Abnormalities on MCU | | | | | | |
| Maximum temperature $\geq 38.8^{\circ}\text{C}$ | 0.83 | 0.52 | 0.53 | 0.83 | 1.76 | 0.32 |
| ≥ 5 days of illness at presentation | 0.08 | 1 | 1 | 0.63 | NA | 0.92 |
| ≥ 27 hours between start of antibiotics and resolution of fever | 0.83 | 0.89 | 0.83 | 0.89 | 7.92 | 0.19 |
| Bacteremia | 0.25 | 1 | 1 | 0.65 | NA | 0.75 |
| Non-E coli | 0.50 | 0.74 | 0.55 | 0.70 | 1.9 | 0.68 |

Abbreviations:

AUC-ROC: area under the receiver operating characteristic curve; CRP: C-reactive protein; DMSA: dimercaptosuccinic acid scan; E coli: Escherichia coli; FBC: full blood count; MCU: micturating cystourethrogram; TW: total white cell count; US KUB: ultrasound of the kidneys, ureters and bladder; UTI: urinary tract infection; WBC: white blood cells

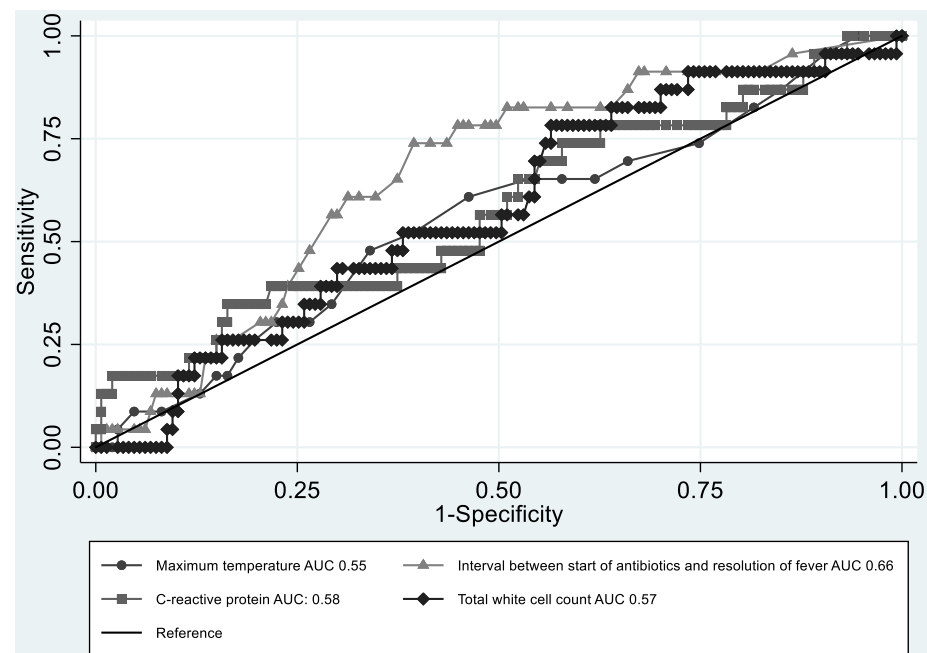
Supplementary Table 3. Sensitivity analyses

| | Assuming all patients who had no imaging results had normal imaging | | Assuming all patients who had no imaging results had abnormal imaging | |
|---|---|---------|---|---------|
| | Abnormalities on ultrasound, DMSA and/or MCU | | Abnormalities on ultrasound, DMSA and/or MCU | |
| | Adjusted OR (95% CI) | p value | Adjusted OR (95% CI) | p value |
| Age at first UTI | 0.99 (0.97-1.01) | 0.529 | 0.99 (0.97-1.00) | 0.109 |
| Maximum temperature | 0.86 (0.41-1.84) | 0.705 | 1.12 (0.62-2.14) | 0.641 |
| Duration of illness at presentation | 0.82 (0.46-1.44) | 0.482 | 0.82 (0.51-1.32) | 0.411 |
| Interval between start of antibiotics and resolution of fever | 1.02 (1.00-1.04) | 0.062 | 1.00 (0.98-1.02) | 0.856 |
| CRP | 1.01 (1.00-1.02) | 0.042 | 1.01 (1.00-1.02) | 0.005 |
| TW on FBC | 1.03 (0.96-1.12) | 0.372 | 0.99 (0.93-1.05) | 0.708 |
| Bacteraemia | 3.34 (0.66-16.80) | 0.143 | 1.40 (0.31-6.25) | 0.663 |
| WBC on urinalysis | 1.00 (1.00-1.00) | 0.683 | 1.00 (1.00-1.00) | 0.989 |
| Non-E coli | 4.89 (1.62-14.72) | 0.005 | 3.15 (1.21-8.23) | 0.019 |

Abbreviations:

CRP: C-reactive protein; DMSA: dimercaptosuccinic acid scan; E coli: Escherichia coli; FBC: full blood count; MCU: micturating cystourethrogram; TW: total white cell count; US KUB: ultrasound of the kidneys, ureters and bladder; UTI: urinary tract infection; WBC: white blood cells

Supplementary Figure 1. ROC and diagnostic characteristics of clinical parameters and investigation results for the primary outcome



| | Sensitivity | Specificity | PPV | NPV | LR+ | LR- |
|--|-------------|-------------|------|------|------|------|
| Continuous variables with cut-off selected using optimum Youden Index | | | | | | |
| Maximum temperature $\geq 39^{\circ}\text{C}$ | 0.58 | 0.53 | 0.15 | 0.90 | 1.25 | 0.78 |
| ≥ 23 hours between start of antibiotics and resolution of fever | 0.63 | 0.65 | 0.21 | 0.92 | 1.81 | 0.57 |
| TW on FBC $\geq 14.1 \times 10^9/\text{L}$ | 0.78 | 0.42 | 0.16 | 0.93 | 1.35 | 0.52 |
| Categorical variables and their diagnostic characteristics | | | | | | |
| Bacteremia | 0.13 | 0.94 | 0.25 | 0.88 | 2.19 | 0.92 |
| Non-E coli | 0.42 | 0.81 | 0.26 | 0.90 | 2.21 | 0.72 |

Abbreviations:

CRP: C-reactive protein; FBC: full blood count; LR-: negative likelihood ratio; LR+: positive likelihood ratio; non-E coli: non-Escherichia coli in urine culture; NPV: negative predictive value; PPV: positive predictive value; ROC: receiver operating characteristic; TW: total white cell count

