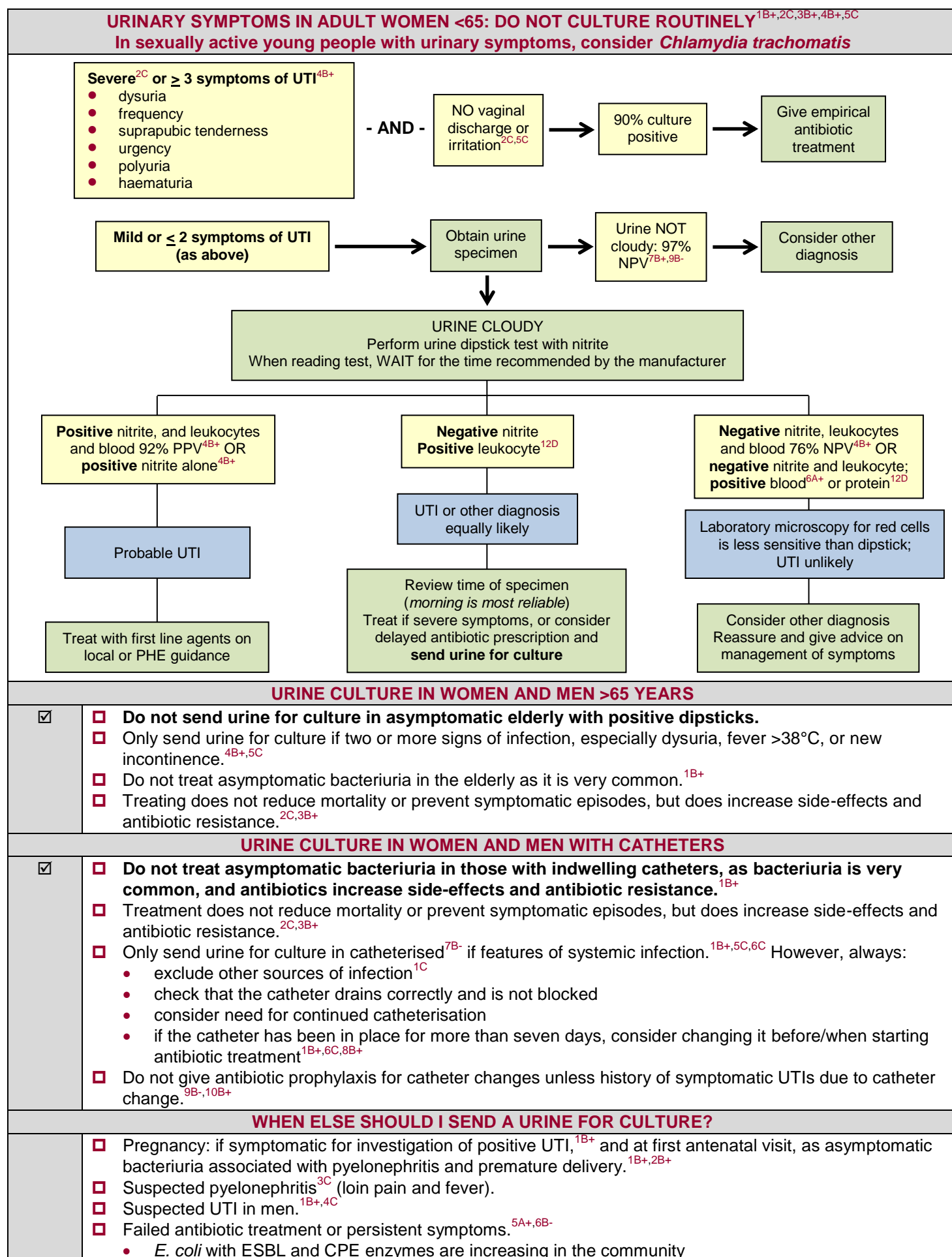


Diagnosis of urinary tract infections (UTIs)

Quick reference guide for primary care: Summary table



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	<ul style="list-style-type: none">ESBLs are multi-resistant, but usually remain sensitive to nitrofurantoin or fosfomycin^{7B+,8B+,9A+} <p>❑ Recurrent UTI, abnormalities of GU tract, or renal impairment, as more likely to have a resistant strain.</p>
SAMPLING IN WOMEN AND MEN	
☑	<p>❑ Refrigerate specimens to prevent bacterial overgrowth,^{1B+} or use specimen pots with boric acid (fill to the line).^{1B+}</p> <p>❑ Women: specimen should be midstream.^{1C,2C} Cleansing with water^{5B-} and holding the labia apart^{3B+,4B-} are not essential. Cleansing with antiseptic leads to false negatives.^{6B-}</p> <p>❑ Men: specimen should be midstream.^{1C,2C}</p> <p>❑ People with catheters: using aseptic technique, drain a few mL of urine, then collect a sample from catheter sampling port.^{1C}</p>
HOW DO I INTERPRET A CULTURE RESULT?	
	<p>❑ Usually indicates UTI in patient with urinary symptoms.^{1B+} Higher counts have even higher positive predictive value.</p> <ul style="list-style-type: none">single organism >10⁴ colony forming units (CFU)/mL^{1B+}>10⁵ mixed growth with one predominant organism<i>Escherichia coli</i> or <i>Staphylococcus saprophyticus</i> >10³ CFU/mL^{1B+} <p>❑ Do not treat asymptomatic bacteriuria in the elderly as it does not reduce mortality or prevent symptomatic episodes.</p> <p>❑ White blood cells:^{2C}</p> <ul style="list-style-type: none">white cells >10⁴/mL are considered to represent inflammation'no white cells present' indicates no inflammation and reduces culture significancepregnancy is associated with physiological pyuria <p>❑ Sterile pyuria:^{2C}</p> <ul style="list-style-type: none">in sterile pyuria, consider <i>Chlamydia trachomatis</i> (especially if 16-24 years), other vaginal infections, other non-culturable organisms, including TB or renal pathology <p>❑ Epithelial cells/mixed growth:^{2C}</p> <ul style="list-style-type: none">presence indicates perineal contamination, which reduces significance of culture <p>❑ Red cells:^{3C}</p> <ul style="list-style-type: none">may be present in UTI; refer patients with persistent haematuria post-UTIlab microscopy for red cells is less accurate than dipstick due to red cell lysis in transport
IS A FOLLOW-UP URINE SAMPLE NEEDED?	
	<p>❑ Not usually indicated, except when treating asymptomatic bacteriuria in pregnancy.</p>
CHILDREN	
Consider UTI in any sick child and every young child with unexplained fever ^{1B+,2A+}	
<div><div><div>Child < 3 months with suspected UTI: failure to thrive and/or fever and/or vomiting and/or irritability</div><div>Send urine for culture and sensitivities</div><div>Refer urgently for assessment^{1C,2C}</div></div><div><div>All children aged 3 months to 3 years of age with specific or non-specific urinary symptoms^{1B+,2A+}</div><div>Send urine for culture and sensitivities</div></div></div>	
<div>Children aged 3 years and older with specific or non-specific urinary symptoms → Assess with leukocyte and nitrite urine dipstick^{1B+,2A+}</div> <div><div><div>Positive leukocytes AND nitrite</div><div>Probable UTI</div><div>Treat as UTI and send urine for culture</div></div><div><div>Positive nitrite Negative leukocyte</div><div>Probable UTI</div><div>Treat as UTI if sample <4 hours old and send urine for culture</div></div><div><div>Positive leukocyte Negative nitrite</div><div>May not be UTI</div><div>Send urine for culture; explore other causes;^{1C,2C} treat only if clinically likely to be a UTI</div></div><div><div>Negative leukocytes AND nitrite</div><div>UTI unlikely</div><div>Explore other causes of illness</div></div></div> <div><div>Child over 3 years with other risk:<ul style="list-style-type: none">systemic illness or suspected pyelonephritisrequire immediate transfer to hospitalrecurrent UTIno response to treatment within 24-48 hours</div><div>Send urine for culture and sensitivities</div></div>	

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	<ul style="list-style-type: none"> ❑ Sampling in children: <ul style="list-style-type: none"> • in toddlers, clean catch urine using potties washed in hot water (60°C) with washing up liquid are suitable^{1B-,2C} • in infants, clean catch urine is preferable;^{2C} a collection pad in a nappy may be used but is less accurate;^{3B+} changing the pad every 30 minutes until urine is passed reduces contamination;^{4A-} bag urines are less comfortable^{2C,3B-} ❑ Interpretation of culture results: <ul style="list-style-type: none"> • single organism >10⁴ CFU/mL indicates UTI;^{1B+} suprapubic aspirates: growth is significant • all children need clinical assessment for risk factors; if risk factors or non <i>E. coli</i> UTI, renal imaging needed^{1D} • white blood cells: in children, pyuria may be absent, or present (due to fever without UTI)^{3C}
KEY: ☑ = good practice point	

GRADING OF GUIDANCE RECOMMENDATIONS

The strength of each recommendation is qualified by a letter in parenthesis. This is an altered version of the grading recommendation system used by **SIGN**.

STUDY DESIGN	RECOMMENDATION GRADE
Good recent systematic review and meta-analysis of studies	A+
One or more rigorous studies; randomised controlled trials	A-
One or more prospective studies	B+
One or more retrospective studies	B-
Non-analytic studies, eg case reports or case series	C
Formal combination of expert opinion	D

This guidance was originally produced in 2002 by the South West GP Microbiology Laboratory Use Group, in collaboration with the Association of Medical Microbiologists, general practitioners, nurses and specialists in the field. This guidance was reformatted in 2017 in line with PHE recommendations. For detailed information regarding the comments provided and action taken, please email sarah.alton@phe.gov.uk. Public Health England works closely with the authors of the **Clinical Knowledge Summaries**.

If you would like to receive a copy of this guidance with the most recent changes highlighted, please email sarah.alton@phe.gov.uk.

For detailed information regarding the search strategies implemented and full literature search results, please email sarah.alton@phe.gov.uk.