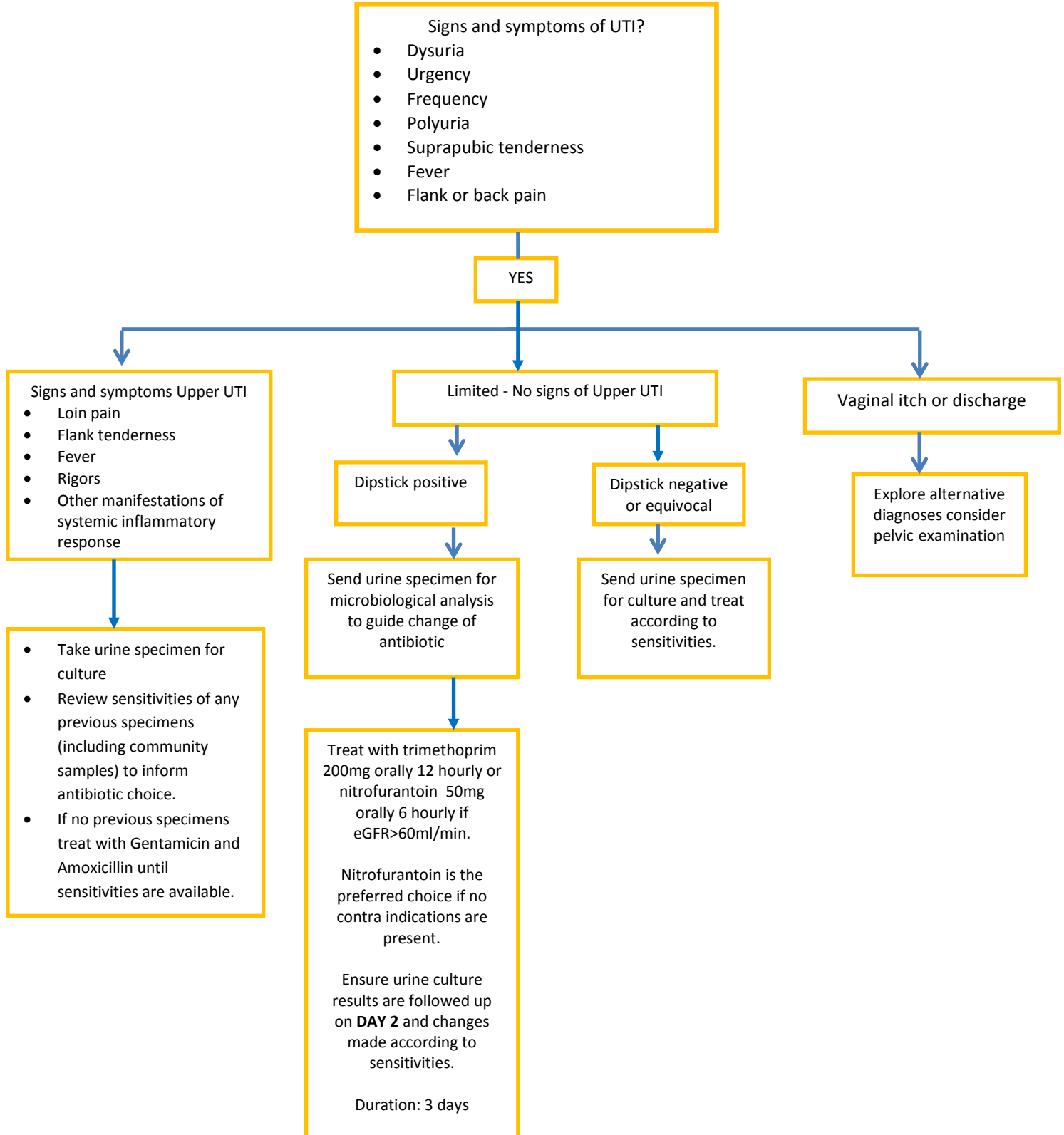


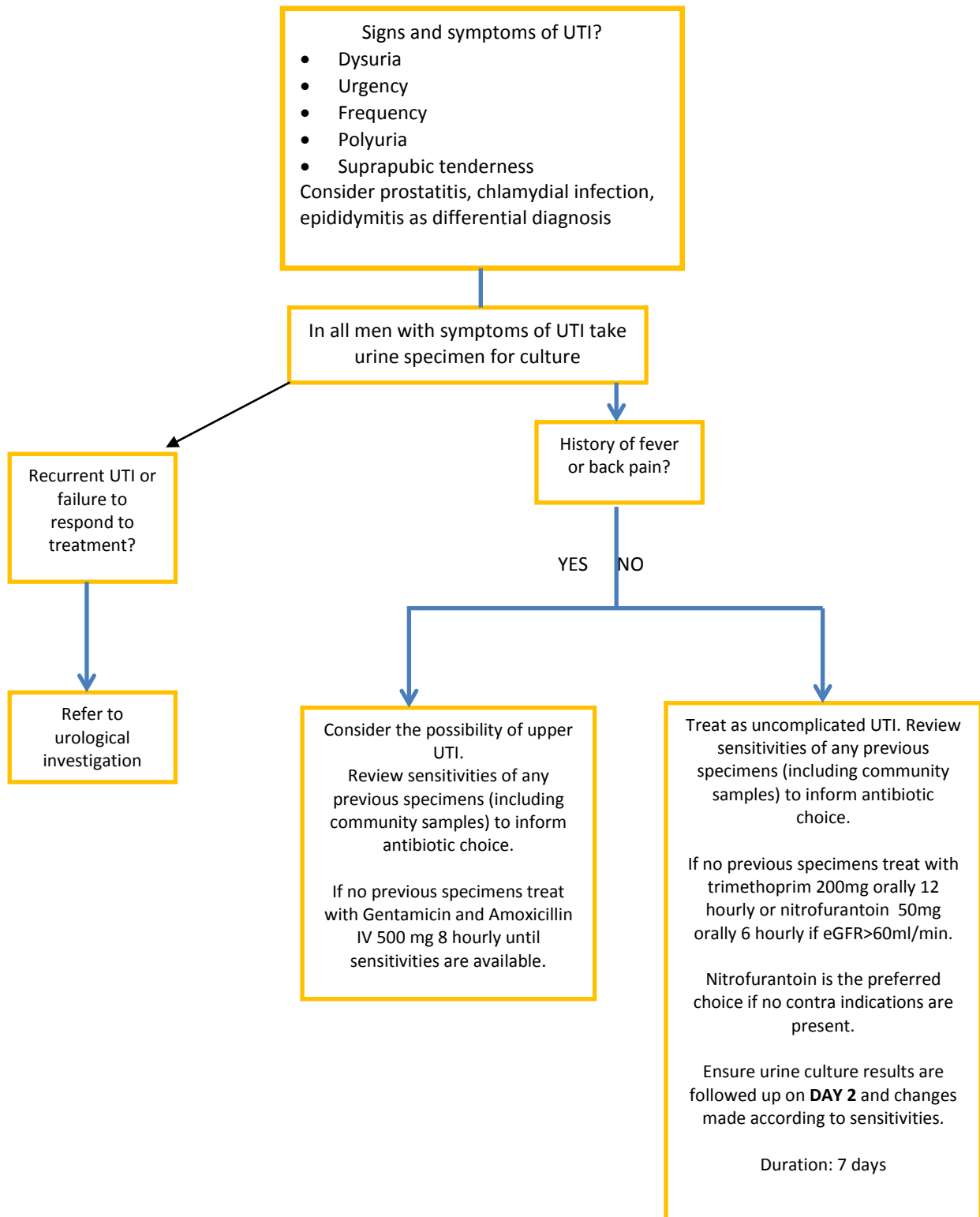
CLINICAL GUIDELINE FOR The Management of suspected bacterial urinary tract infection in adults (excluding pregnant women)

Summary.

Management of Suspected UTI in women < 65 years (not pregnant, not catheterised)



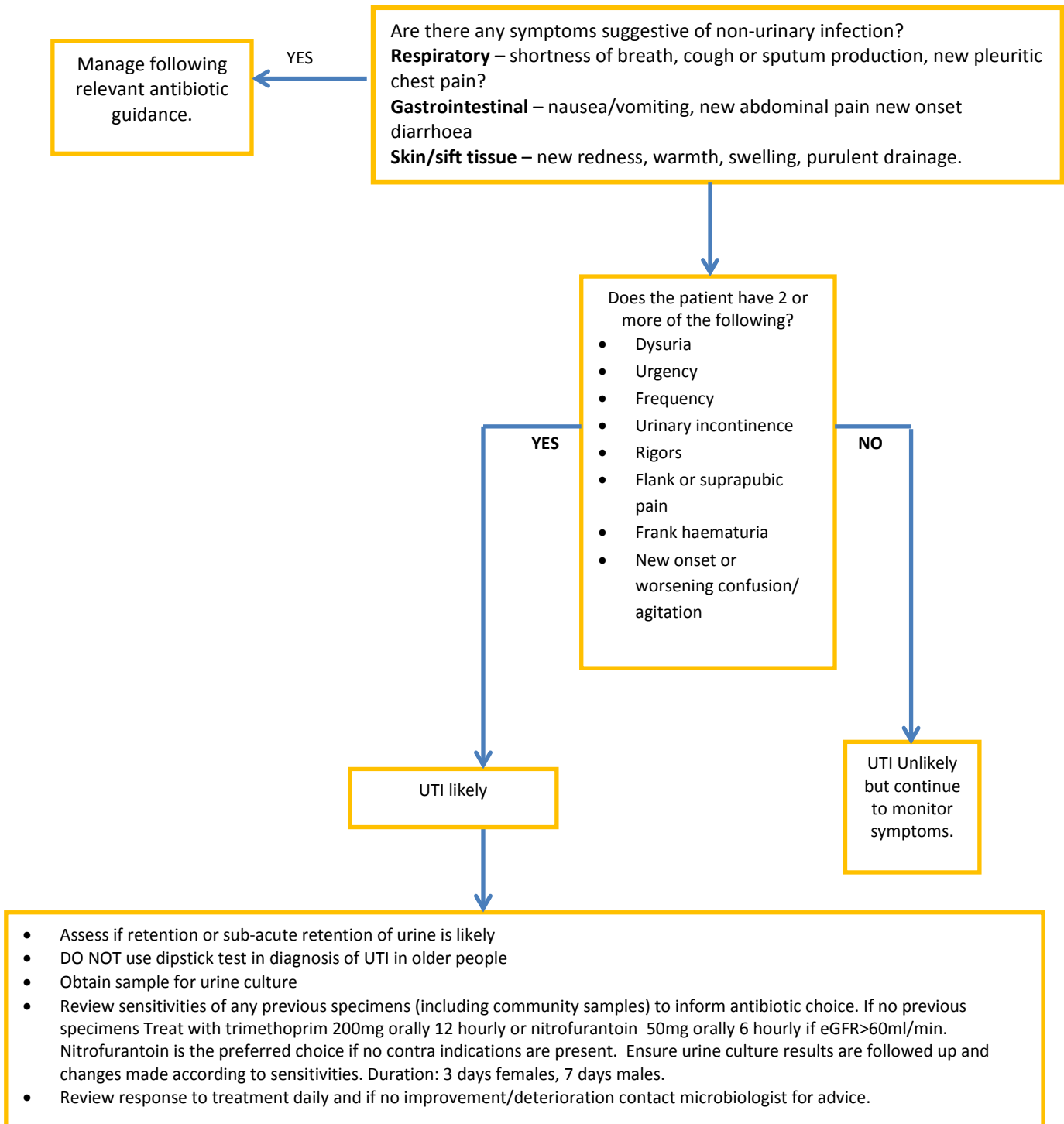
Management of Suspected UTI in men <65 years not catheterised



Management of Suspected UTI in Older People >65 years (not catheterised)

Decision aid to guide management of patients with fever defined as temperature >37.9°C or 1.5° C increase above baseline occurring on a least two occasions in the last 12 hours.

Hypothermia temperature of <36°C may also indicate infection especially those with comorbidities. Be alert to non-specific symptoms of infection such as abdominal pain, alteration of behaviours or loss of diabetes control.



Management of Bacterial UTI in patients with catheters

Signs and symptoms compatible with catheter-associated UTI include new onset or worsening of fever, rigors, altered mental status, malaise, or lethargy with no other identified cause; flank pain; renal angle tenderness; acute haematuria; pelvic discomfort; and in those whose catheters have been removed, dysuria, urgent or frequent urination, or supra-pubic pain or tenderness.

In patients with spinal cord injury, increased spasticity, autonomic dysreflexia, or sense of unease are also compatible with catheter-associated UTI.

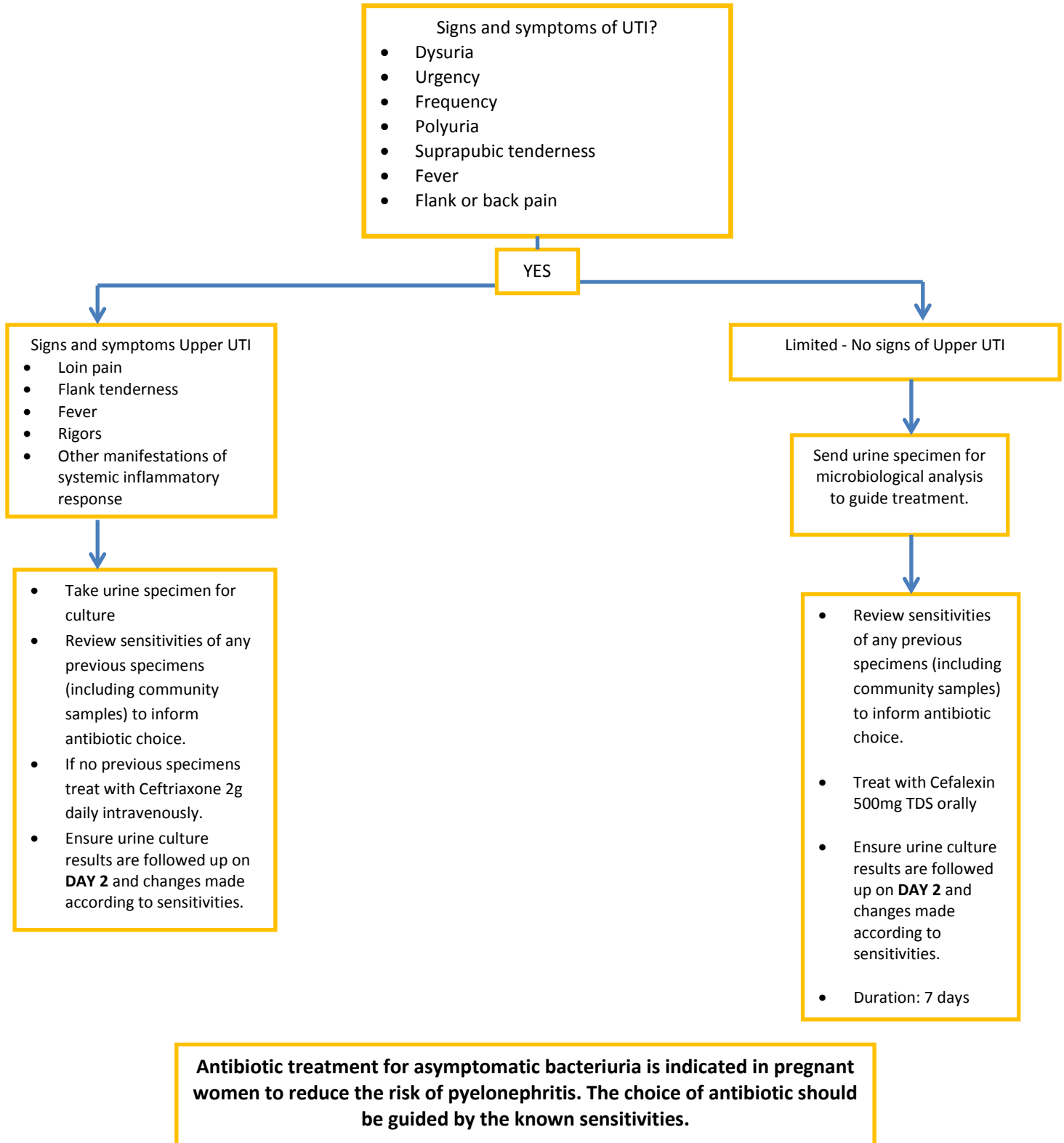
Catheterised patients presenting with fever

- Look for associated localising (loin or supra-pubic tenderness) or systemic features
- Exclude other potential sources of infection
- Obtain a catheter specimen of urine for culture to determine the infecting organism and susceptibility to antibiotics
- Do not use dipstick testing to diagnose UTI in patients with catheters.
- Change long term indwelling catheters before starting antibiotic treatment for symptomatic UTI
- Consider antibiotic therapy taking into account the severity of the presentation and any comorbid factors.
- Review sensitivities of any previous specimens (including community samples) to inform antibiotic choice. If no previous specimens Treat with trimethoprim 200mg orally 12 hourly or nitrofurantoin 50mg orally 6 hourly if eGFR>60ml/min. Nitrofurantoin is the preferred choice if no contra indications are present. Ensure urine culture results are followed up and changes made according to sensitivities. Duration: 3 days females, 7 days males.
- Review response to treatment daily and if no improvement/deterioration contact microbiologist for advice.

Only send urine samples for laboratory culture if the patient has clinical sepsis, not because the appearance or smell of the urine suggests that bacteriuria is present.

Do not treat catheterised patients with asymptomatic bacteriuria with an antibiotic.

Management of Suspected UTI in pregnant women



1. Aim/Purpose of this Guideline

To provide information to clinical staff on the correct management of adults (excluding pregnant women) with suspected bacterial urinary tract infection.

2. The Guidance

2.1 Background

Urinary tract infection (UTI) is the second most common clinical indication for empirical antimicrobial treatment in primary and secondary care. Healthcare practitioners often have to make decisions about prescription of antibiotics for urinary tract infection. The criteria for the diagnosis of urinary tract infection vary greatly in the UK, depending on the patient and the context.

Urinary tract infections are caused by the presence and multiplication of microorganisms in the urinary tract. A urinary tract infection can result in several clinical syndromes, including acute and chronic pyelonephritis (infection of the kidney and renal pelvis), cystitis (infection of the bladder), urethritis (infection of the urethra), epididymitis (infection of the epididymis) and prostatitis (infection of the prostate gland). Infection may spread to surrounding tissues (for example, perinephric abscess) or to the bloodstream. A urinary tract infection is defined by a combination of clinical features and the presence of bacteria in the urine. Asymptomatic bacteriuria is the occurrence of bacteria in the urine without causing symptoms. When symptoms occur as a result of bacteria this is referred to as symptomatic bacteriuria.

In people aged 65 years and over, asymptomatic bacteriuria is common but is not associated with increased morbidity. The diagnosis of urinary tract infection is particularly difficult in older people, who are more likely to have asymptomatic bacteriuria. The prevalence of bacteriuria may be so high that urine culture ceases to be a reliable diagnostic test.

Prudent antibiotic prescribing is a key component of the UK's action plans for reducing antimicrobial resistance. Unnecessary antibiotic treatment of asymptomatic bacteriuria is associated with significantly increased risk of clinical adverse events, including *Clostridium difficile* or methicillin-resistant *Staphylococcus aureus* infections, infection with multi-drug-resistant gram-negative organisms including extended-spectrum beta-lactamase organisms and carbapenem-resistant Enterobacteriaceae, and the development of antibiotic-resistant urinary tract infections.

In people with an indwelling urethral catheter, antibiotics do not generally eradicate asymptomatic bacteriuria.

2.2 Management of Bacterial UTI in Adult women aged <65 years (not catheterised or pregnant).

If 3 or more of the following symptoms are present and the patient does not have vaginal discharge or irritation empirical antibiotics are appropriate following collection of a urine specimen for culture:

- Dysuria
- Frequency

- Suprapubic tenderness
- Urgency
- Polyuria
- Haematuria

If the patient has 2 or less of the above symptoms, obtain urine specimen for culture. If the urine is not cloudy consider other diagnosis. If the urine is cloudy perform urine dipstick with nitrite and wait for the recommended time by the manufacturer.

Actions to be taken on positive dipstick result:

- **Positive nitrate, leucocytes and blood or nitrite alone** – probable UTI treat with first line antibiotics. Send urine specimen for culture.
- **Negative nitrite, positive leucocyte** – UTI or other diagnosis equally likely. Treat if severe symptoms or consider delayed antibiotics and send urine for culture.
- **Negative nitrite, leucocytes and blood or negative nitrite and leucocyte but positive blood or protein** – UTI unlikely, consider other diagnosis and advise on management of symptoms.

In the absence of previous specimen result treat with trimethoprim 200mg orally 12 hourly or nitrofurantoin 50mg orally 6 hourly if eGFR>60ml/min. Nitrofurantoin is the preferred choice if no contra indications are present. Ensure urine culture results are followed up on **DAY 2** and changes made according to sensitivities. Duration: 3 days

If any of the following are present obtain urine specimen for culture and treat for Upper UTI.

- Loin pain
- Flank tenderness
- Fever
- Rigors
- Other manifestations of systemic inflammatory response

In the absence of previous specimen result treat with Gentamicin and Amoxicillin until sensitivities are available. Ensure urine culture results are followed up on **DAY 2** and changes made according to sensitivities.

Patients with recurrent UTIs may be more likely to have resistant organisms due to repeated exposure to antibiotics. Assessment for possible underlying urinary tract abnormalities should be considered and urology referral made if appropriate. Prophylaxis for recurrent UTI should not be routinely started. If considering prophylaxis then discussion with the Microbiologist and/or Urologist is required with regards to choice of agent and follow-up.

For all patients treated for suspected UTI, a pre-treatment mid-stream specimen of urine should be sent and previous microbiology results reviewed prior to prescribing antibiotics.

2.3 Management of Bacterial UTI in Adult men aged <65 years (not catheterised).

If any of the following symptoms are present, a specimen of urine should be taken for culture and differential diagnosis should include prostatitis, chlamydial infection or epididymitis.

- Dysuria
- Frequency
- Suprapubic tenderness
- Urgency
- Polyuria

If the patient does not have back pain treat as uncomplicated UTI. Review sensitivities of any previous specimens (including community samples) to inform antibiotic choice. If no previous specimens treat with trimethoprim 200mg orally 12 hourly or nitrofurantoin 50mg orally 6 hourly if eGFR>60ml/min. Nitrofurantoin is the preferred choice if no contra indications are present. Duration: 7 days. Ensure urine culture results are followed up on **DAY 2** and changes made according to sensitivities.

If the patient has recurrent UTIs or fails to respond to treatment a referral should be made for urological investigation.

If the patient has back pain as well as the above consider the possibility of upper urinary tract infection. Review sensitivities of any previous specimens (including community samples) to inform antibiotic choice. If no previous specimens treat with Gentamicin and Amoxicillin IV 500 mg 8 hourly until sensitivities are available. Ensure urine culture results are followed up on **DAY 2** and changes made according to sensitivities.

For all patients treated for suspected UTI, a pre-treatment mid-stream specimen of urine should be sent and previous microbiology results reviewed prior to prescribing antibiotics.

2.4 Management of Bacterial UTI in adults >65 years (not catheterised)

If the patient has 2 or more of the following:

- dysuria
- urgency
- frequency
- urinary incontinence
- shaking chills (rigors)
- flank or suprapubic pain
- frank haematuria
- new onset or worsening of pre-existing confusion /agitation

OR one of the following:

- Rigors
- New renal angle tenderness

UTI is likely however full clinical assessment of the patient is required including:

- Face to face review of the person's medical history
- Physical examination
- Assessment of BP, pulse and temperature
- Assess if retention or sub-acute retention of urine is likely (eg distended bladder)
- DO NOT use dipstick test in diagnosis of UTI in older people
- Obtain a sample for urine culture and send to Microbiology
- Review sensitivities of any previous specimens (including community samples) to inform antibiotic choice.
- If no previous specimen treat with trimethoprim 200mg orally 12 hourly or nitrofurantoin 50mg orally 6 hourly if eGFR>60ml/min. Nitrofurantoin is the preferred choice if no contra indications are present. Duration: 3 days females, 7 days males.
- Ensure urine culture results are followed up on **DAY 2** and changes made according to sensitivities.
- Consider use of analgesia (paracetamol or ibuprofen) to relieve pain
- Review response to treatment daily and if no response discuss with microbiologist

2.5 Management of Bacterial UTI in patients with catheters.

Between two and seven per cent of patients with indwelling urethral catheters acquire bacteriuria each day, even with the application of best practice for insertion and care of the catheter. All patients with a long term indwelling catheter are bacteriuric, often with two or more organisms.

Signs and symptoms compatible with catheter-associated UTI include new onset or worsening of fever, rigors, altered mental status, malaise, or lethargy with no other identified cause; flank pain; renal angle tenderness; acute haematuria; pelvic discomfort; and in those whose catheters have been removed, dysuria, urgent or frequent urination, or supra-pubic pain or tenderness.

In patients with spinal cord injury, increased spasticity, autonomic dysreflexia, or sense of unease are also compatible with catheter-associated UTI.

In catheterised patients who present with fever:

- Look for associated localising (loin or supra-pubic tenderness) or systemic features
- Exclude other potential sources of infection
- Obtain a catheter specimen of urine for culture to determine the infecting organism and susceptibility to antibiotics
- Do not use dipstick testing to diagnose UTI in patients with catheters.
- Change long term indwelling catheters before starting antibiotic treatment for symptomatic UTI
- Consider antibiotic therapy taking into account the severity of the presentation and any comorbid factors.
- Review sensitivities of any previous specimens (including community samples) to inform antibiotic choice. If no previous specimens treat with

trimethoprim 200mg orally 12 hourly or nitrofurantoin 50mg orally 6 hourly if eGFR>60ml/min. Nitrofurantoin is the preferred choice if no contra indications are present. Duration: 3 days females, 7 days males.

- Ensure urine culture results are followed up on **DAY 2** and changes made according to sensitivities.
- Review response to treatment daily and if no improvement/deterioration contact microbiologist for advice.

Only send urine samples for laboratory culture if the patient has clinical sepsis, not because the appearance or smell of the urine suggests that bacteriuria is present.

Do not treat catheterised patients with asymptomatic bacteriuria with an antibiotic.

2.6 Management of bacterial UTI in pregnant women.

Urinary tract infections occur commonly during pregnancy. UTIs include acute cystitis, pyelonephritis and asymptomatic bacteriuria (positive urine culture in an asymptomatic woman). Approximately 1–4 % of pregnant women experience acute cystitis and the incidence of asymptomatic bacteriuria during pregnancy ranges from 2–10 %. Asymptomatic bacteriuria during pregnancy has been associated with an increased risk of pre-term delivery and low birth weight. In addition, if untreated, 20–40% of pregnant women with asymptomatic bacteriuria may develop pyelonephritis later in pregnancy. Antibiotic treatment for asymptomatic bacteriuria is therefore indicated in pregnant women to reduce the risk of pyelonephritis. The choice of antibiotic should be guided by the known sensitivities.

Pregnant women with acute cystitis commonly present with symptoms of dysuria, urgency and frequency, without evidence of systemic illness. In such cases a urine specimen must be sent for culture and treatment commenced. Review sensitivities of any previous specimens (including community samples) to inform antibiotic choice. If no previous specimens treat with Cefalexin 500mg TDS orally. A seven day treatment period is required to ensure eradication. Ensure urine culture results are followed up on **DAY 2** and changes made according to sensitivities.

Where upper urinary tract infection is suspected a urine specimen must be sent for culture. Review sensitivities of any previous specimens (including community samples) to inform antibiotic choice. If no previous specimens treat with Ceftriaxone 2g daily intravenously. Ensure urine culture results are followed up on **DAY 2** and changes made according to sensitivities.

A follow up urine culture can be requested one to two weeks after the antibiotic course has been completed to ensure eradication.

Paracetamol can be used to relieve pain associated with acute cystitis.

3. Monitoring compliance and effectiveness

Clinical Guideline for The Management of suspected bacterial urinary tract infection in adults.

This part must provide information on the processes and methodology for monitoring compliance with, and effectiveness of, the policy using the table below.

Element to be monitored	Diagnosis of UTIs based on signs and symptoms and not on inappropriate urine dip stick use.
Lead	Antibiotic stewardship team
Tool	Audit tool
Frequency	Six monthly audit to be included in the antibiotic stewardship section of the annual Infection Prevention Control report
Reporting arrangements	Hospital Infection Control Committee
Acting on recommendations and Lead(s)	The Antibiotic Stewardship Committee to co-ordinate the required actions from the audit.
Change in practice and lessons to be shared	Required changes to practice will be identified and actioned within a month. A lead member of the team will be identified to take each change forward where appropriate. Lessons will be shared with all the relevant stakeholders

4. Equality and Diversity

- a. This document complies with the Royal Cornwall Hospitals NHS Trust service Equality and Diversity statement which can be found in the ['Equality, Diversity & Human Rights Policy'](#) or the [Equality and Diversity website](#).

b. Equality Impact Assessment

The Initial Equality Impact Assessment Screening Form is at Appendix 2.

Appendix 1. Governance Information

Document Title	Clinical Guideline for The Management of suspected bacterial urinary tract infection in adults.			
Date Issued/Approved:	21 st April 2017			
Date Valid From:	21 st April 2017			
Date Valid To:	21 st April 2017			
Directorate / Department responsible (author/owner):	CSSC			
Contact details:	Number in full, not extension only			
Brief summary of contents	Guidance on the appropriate assessment, treatment and management of adults presenting with suspected urinary tract infection.			
Suggested Keywords:	UTI, Bacterial			
Target Audience	RCHT ✓	PCH	CFT	KCCG
Executive Director responsible for Policy:	Medical Director			
Date revised:				
This document replaces (exact title of previous version):	New Document			
Approval route (names of committees)/consultation:	MPC, HICC			
Divisional Manager confirming approval processes	Head of relevant Division			
Name and Post Title of additional signatories	If none enter 'Not Required'			
Name and Signature of Divisional/Directorate Governance Lead confirming approval by specialty and divisional management meetings	{Original Copy Signed}			
	Name:			
Signature of Executive Director giving approval	{Original Copy Signed}			
Publication Location (refer to Policy on Policies – Approvals and Ratification):	Internet & Intranet	✓	Intranet Only	

Document Library Folder/Sub Folder	Clinical / Pharmacy
Links to key external standards	Governance Team can advise
Related Documents:	<p>Health Improvement Scotland (2012) <i>SIGN 88 Management of suspected bacterial urinary tract infection in adults.</i> http://www.sign.ac.uk/pdf/sign88.pdf</p> <p>Public Health England (2014) Urinary tract infections: quick reference guide. https://www.gov.uk/government/publications/urinary-tract-infection-diagnosis</p> <p>NICE (2015) Urinary tract infections in adults. Quality Standard. nice.org.uk/guidance/qs90</p>
Training Need Identified?	No

Version Control Table

Date	Version No	Summary of Changes	Changes Made by (Name and Job Title)
29.07.16		New guidelines	Louise Dickinson Consultant Nurse Richard Bendall Microbiologist

All or part of this document can be released under the Freedom of Information Act 2000

This document is to be retained for 10 years from the date of expiry.

This document is only valid on the day of printing

Controlled Document

This document has been created following the Royal Cornwall Hospitals NHS Trust Policy on Document Production. It should not be altered in any way without the express permission of the author or their Line Manager.

Appendix 2. Initial Equality Impact Assessment Form

Name of the strategy / policy / proposal / service function to be assessed (hereafter referred to as <i>policy</i>) (Provide brief description):	
Directorate and service area:	Is this a new or existing Policy? New
Name of individual completing assessment: Louise Dickinson	Telephone: 01872 254969
1. Policy Aim* Who is the strategy / policy / proposal / service function aimed at?	To ensure patients presenting with symptoms of Urinary Tract Infections are assessed and treated appropriately
2. Policy Objectives*	To provide guidance to medical and nursing staff on the correct management of patients with suspected Urinary Tract Infections
3. Policy – intended Outcomes*	To treat patients with suspected urinary tract infections appropriately
4. *How will you measure the outcome?	6 monthly audit
5. Who is intended to benefit from the policy?	Patients
6a) Is consultation required with the workforce, equality groups, local interest groups etc. around this policy?	Yes
b) If yes, have these *groups been consulted?	Yes
C). Please list any groups who have been consulted about this procedure.	Microbiologists, Eldercare team.

7. The Impact			
Please complete the following table.			
Are there concerns that the policy could have differential impact on:			
Equality Strands:	Yes	No	Rationale for Assessment / Existing Evidence
Age		✓	
Sex (male, female, trans-gender / gender reassignment)		✓	
Race / Ethnic communities /groups		✓	

Disability - Learning disability, physical disability, sensory impairment and mental health problems		✓	
Religion / other beliefs		✓	
Marriage and civil partnership		✓	
Pregnancy and maternity		✓	
Sexual Orientation, Bisexual, Gay, heterosexual, Lesbian		✓	
<p>You will need to continue to a full Equality Impact Assessment if the following have been highlighted:</p> <ul style="list-style-type: none"> • You have ticked “Yes” in any column above and • No consultation or evidence of there being consultation- this <u>excludes</u> any <i>policies</i> which have been identified as not requiring consultation. or • Major service redesign or development 			
8. Please indicate if a full equality analysis is recommended.			No
9. If you are not recommending a Full Impact assessment please explain why.			
No issues identified.			
Signature of policy developer / lead manager / director		Date of completion and submission 25.11.16	
Names and signatures of members carrying out the Screening Assessment	1. Louise Dickinson 2.		

Keep one copy and send a copy to the Human Rights, Equality and Inclusion Lead,
c/o Royal Cornwall Hospitals NHS Trust, Human Resources Department, Knowledge Spa,
Truro, Cornwall, TR1 3HD

A summary of the results will be published on the Trust’s web site.

Signed _____

Date _____