The Queen Elizabeth Hospital King's Lynn
NHS Foundation Trust

The Queen Elizabeth Hospital King's Lynn NHS Foundation Trust
Clinical Guideline for the Management of Adult Patients Appropriate for the Outpatient Parenteral Antimicrobial Therapy (OPAT) Service

A Clinical Guideline For use in:	Organisation-wide
By:	All healthcare professionals involved in the care of adult patients appropriate for OPAT
For:	Patients of QEHKL and West Norfolk CCG
Division responsible for document:	Clinical Support Services
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If Yes - does the guidance deviate from the recommendations of NICE? If so why?	

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2. Glossary

OPAT	Outpatient parenteral antimicrobial therapy - a method for delivering intravenous antimicrobials in the community or outpatient setting, as an alternative to inpatient care.
ESBL	Extended spectrum b-lactamase
MRSA	Methicillin resistant staphylococcus aureus
MSSA	Methicillin sensitive staphylococcus aureus

3. Quick reference

Not applicable.

4. Objective/s

To provide guidance on the identification of patients for whom parenteral antimicrobial therapy is necessary and can be managed in an outpatient setting.

5. Rationale

Traditionally, clinically stable ambulatory patients requiring intravenous antimicrobials would be hospitalised for periods extending to weeks and sometimes months depending on the infection. OPAT is the administration of intravenous antimicrobial therapy to patients in an outpatient setting or in their own home. The main drivers for OPAT are patient welfare, reduction of risk of healthcare associated infection and cost-effective use of hospital resources.

Suitability for home therapy will depend on the patient, and the susceptibility of the infecting organism to those antibiotics which lend themselves to home therapy. Patients may be discharged early to an OPAT service or may avoid hospital admission altogether.

Conditions which are suitable for treatment with OPAT include:

Short term conditions

- Urinary tract infections caused by resistant organisms, including those caused by ESBL's
- Cellulitis

Long term conditions – treatment for these conditions will be initiated in secondary care

- Bone and joint infections
    - Osteomyelitis (non-vertebral)
    - Vertebral osteomyelitis, discitis, epidural abscess
    - Septic arthritis (native joint)
    - Prosthetic joint infection(acute-chronic)
- Diabetic foot infection
- Endocarditis
- MSSA/MRSA bacteraemia

Refer to each pathway below for guidance on the referral process for each condition

The term OPAT encompasses two basic delivery models:

- Infusion centre model where patients attend the hospital daily for their antimicrobials to be administered. This currently takes place on ambulatory emergency care centre- AEC.
- Visiting nurse model where a nurse administers the antimicrobials in the patient's home. This can be given by an appropriately trained nurse.

6. Scope

This document applies to all adult patients under the care of a consultant at QEHKL and/or patients with a GP in the West Norfolk CCG locality.

7. Processes to be followed

7.1 Penicillin allergy

Penicillin allergy may be defined as 'minor' in patients who have experienced an isolated skin rash only and as 'severe' in patients who have experienced more serious reactions such as anaphylactic shock, angioneurotic oedema or bronchospasm.

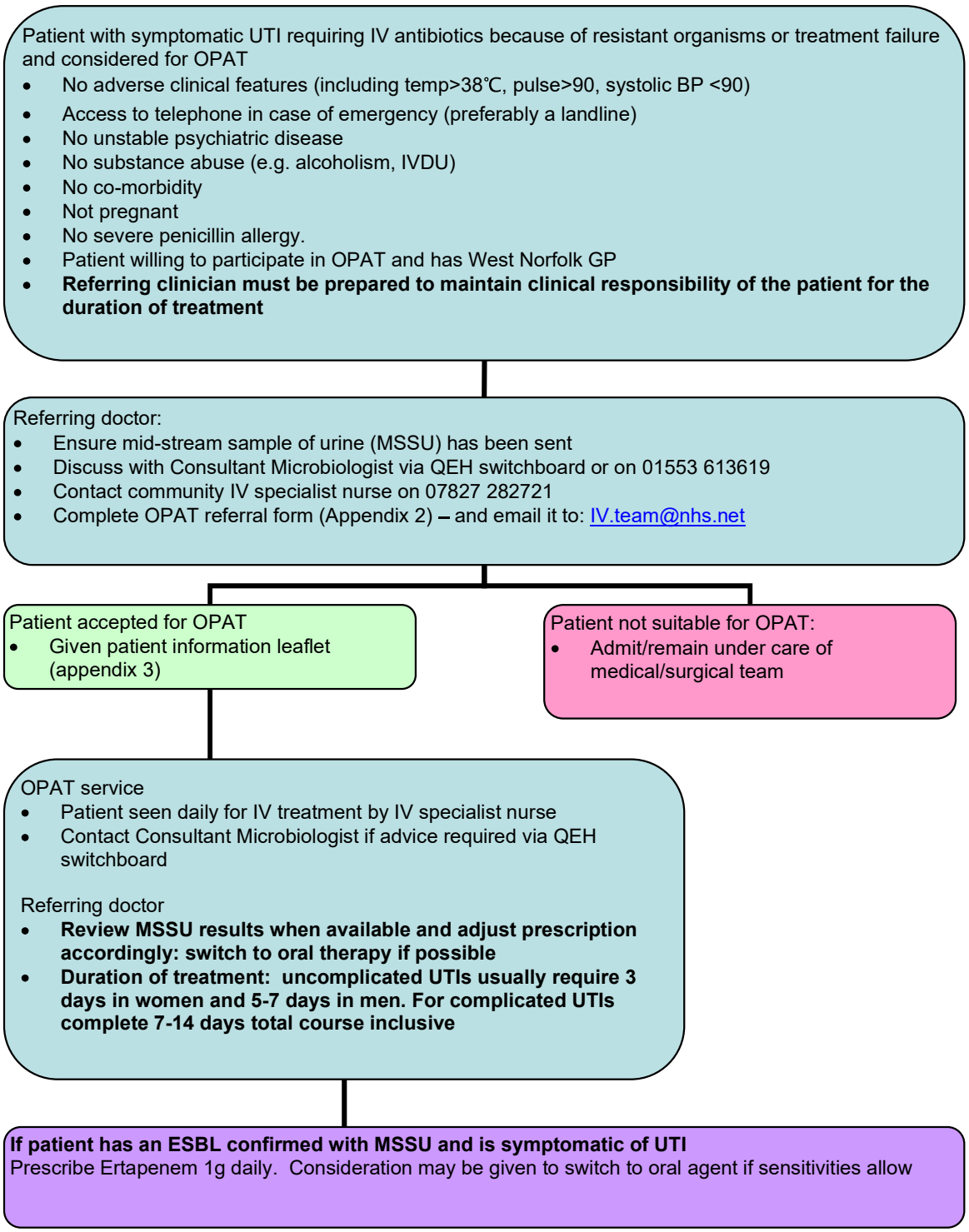
Cephalosporins and carbapenems (such as meropenem or ertapenem) may be used in patients with a 'minor' penicillin allergy.

The guidelines below include antibiotic choices for 'severe' penicillin allergy.

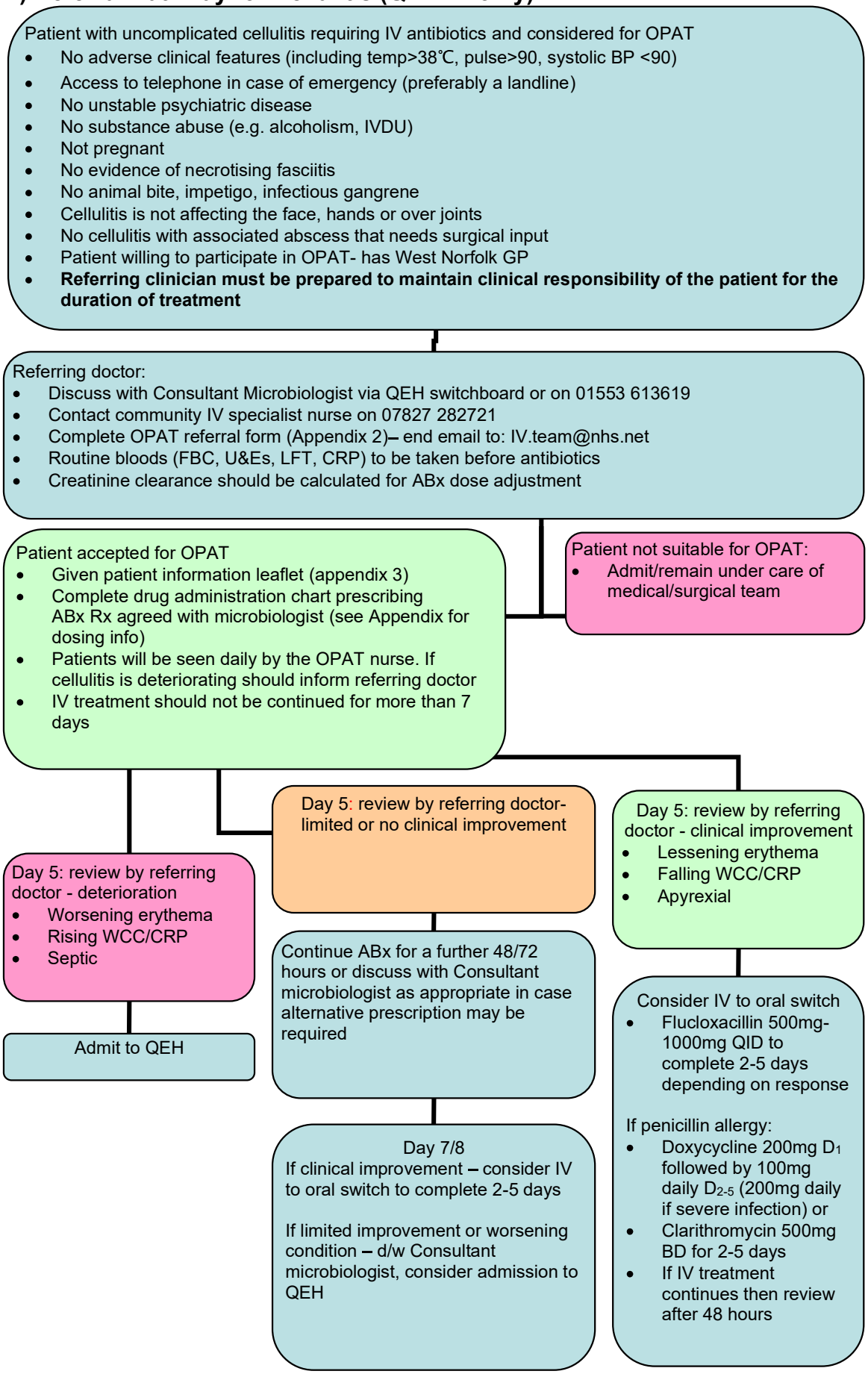
7.2: Short term conditions: treatment can be initiated in primary care and secondary care

A) Urinary tract infections caused by resistant organisms, including those caused by ESBL's
B) Cellulitis

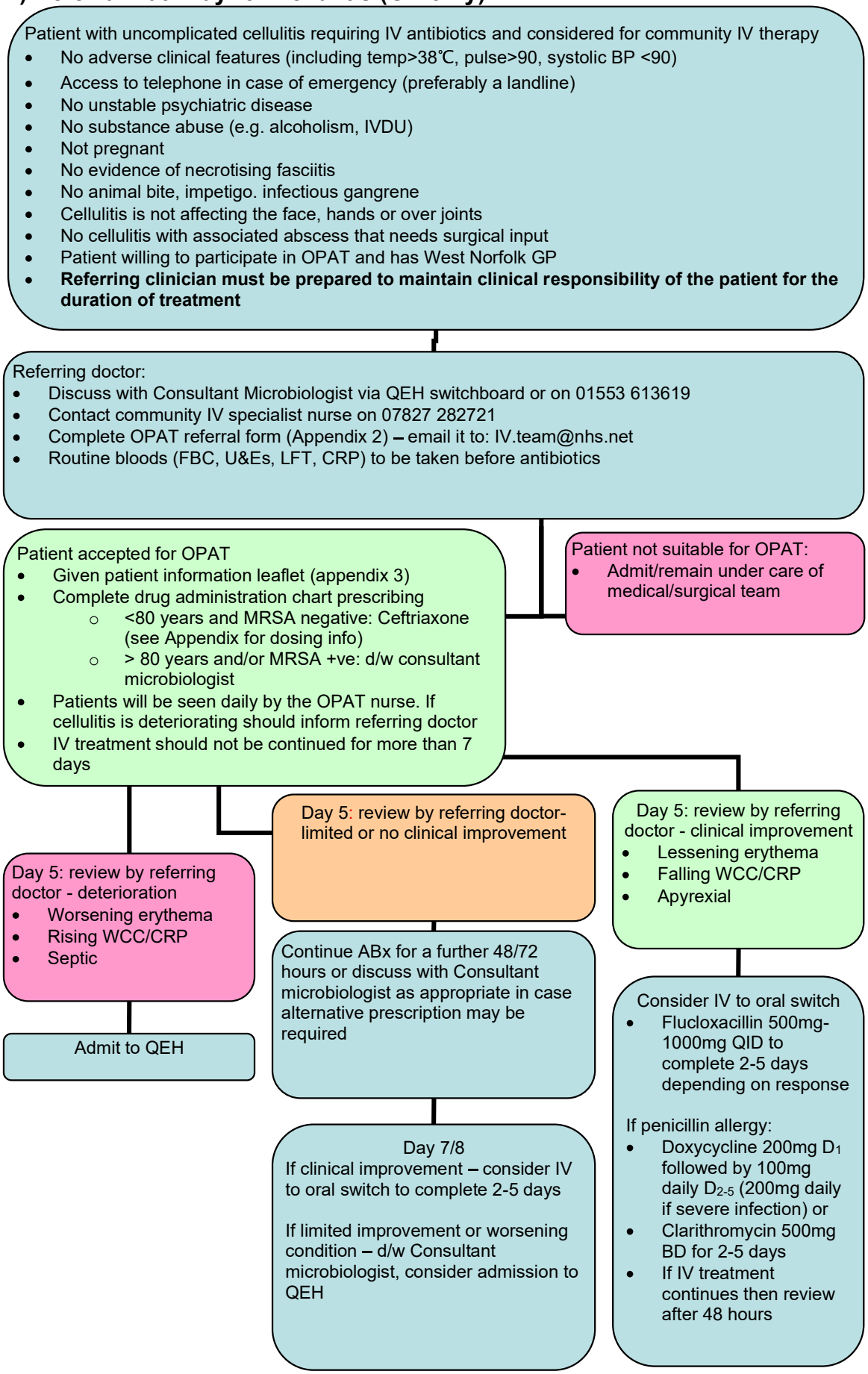
A) Referral Pathway for Urinary Tract Infection caused by ESBL's and other resistant organisms or treatment failure



B) Referral Pathway for Cellulitis (QEHKL only)



B) Referral Pathway for Cellulitis (GP only)



Cellulitis treatment notes

OPAT is for the treatment of uncomplicated cellulitis. It is not intended for the treatment of infection originating from an animal bite, impetigo, infectious gangrene or necrotising fasciitis.

Cellulitis is an acute spreading infection of the skin, which may involve the subcutaneous tissues. The area of cellulitis will be painful, swollen, erythematous and is frequently unilateral. It may follow an abrasion, insect bite or other minor trauma or tinea pedis. The most common pathogens are streptococcus spp (especially *S. pyogenes* and other b-haemolytic streptococci) and *Staphylococcus aureus* including MRSA.

In some cases, broader spectrum antibiotic cover may be required (eg for patients with diabetes). These agents may be considered ONLY after discussion with the Consultant Microbiologist.

Cellulitis may result in severe damage to the tissues, including the lymphatic system. This can take several weeks to recover and, in many cases, leads to permanent lymphatic damage and subsequent lymphoedema. Continuing antibiotics for more than a few days does not shorten this recovery period.

Cellulitis is frequently recurrent.

The diagnosis of cellulitis of the lower limb should be differentiated from:

- Deep-vein thrombosis
- Acute venous eczema
- Features of chronic lymphoedema
- Abscess
- Localised bullous pemphigoid
- Vasculitis
- Osteomyelitis

Radiographic examination can be useful to determine whether skin abscess is present via ultrasonography and for distinguishing cellulitis from osteomyelitis via magnetic resonance imaging. Non-resolving cellulitis after appropriate treatment should raise suspicion for deep seated infection.

For all patients, presenting to the acute medical unit an initial assessment should be made to determine whether a patient is suitable for outpatient therapy. Attention should be paid to:

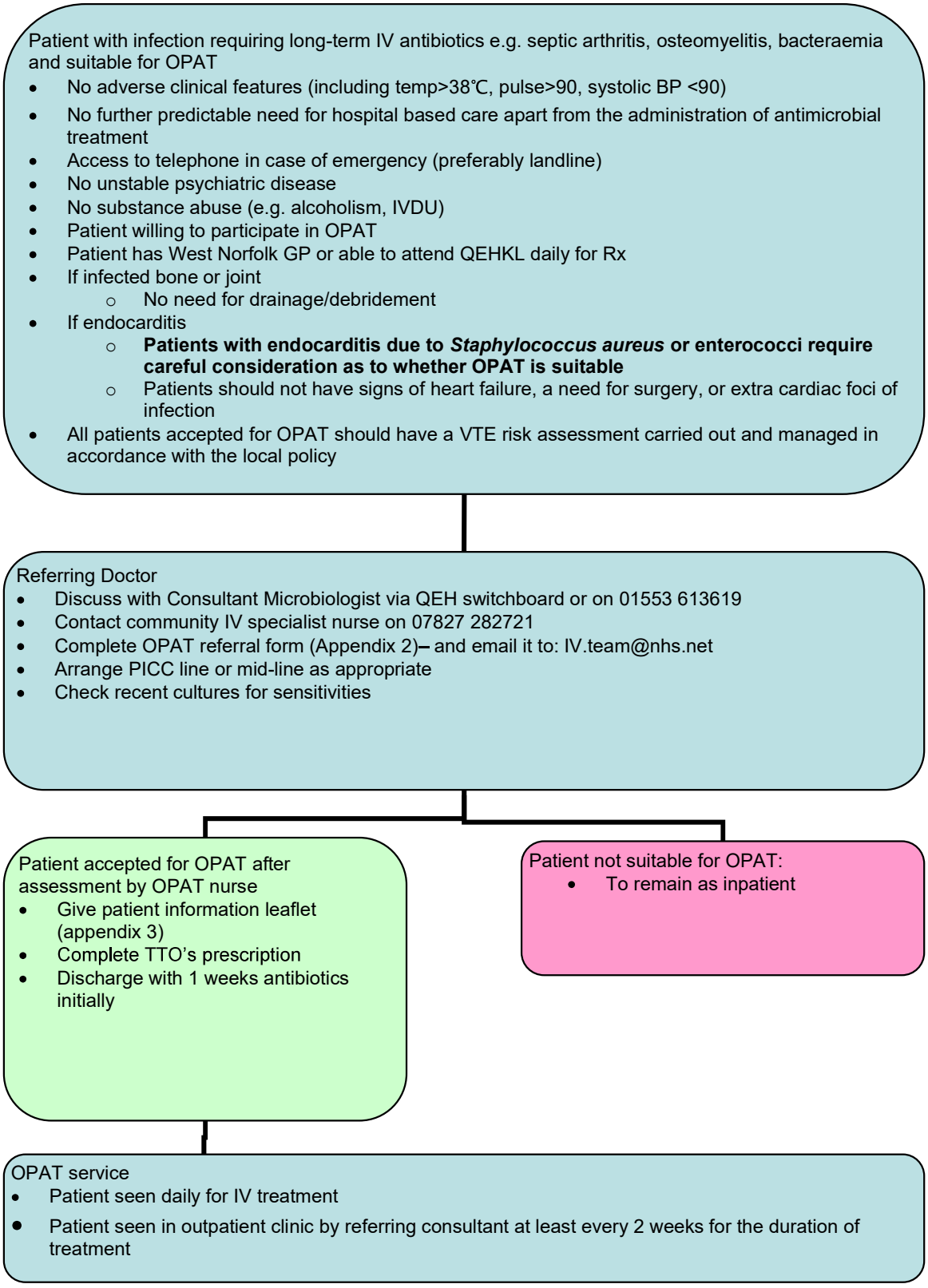
- Severity of infection, local and systemic features
- Presence of co-existing disease or immunosuppression
- Whether cellulitis has progressed despite adequate doses of appropriate oral antibiotics in the community
- See Erons' cellulitis severity classification below.

Erons cellulitis classification

Class I	Patients have no signs of systemic toxicity, have no uncontrolled co-morbidities and can usually be managed with oral antimicrobials on an outpatient basis.	Suitable for oral therapy
Class II	Patients are either systemically ill but no adverse clinical features (including temp>38℃, pulse>90, systolic BP <90) or systemically well but with a co-morbidity such as peripheral vascular disease, chronic venous insufficiently or morbid obesity which may complicate or delay resolution of their infection.	Suitable for OPAT

Class III	Patients may have a significant systemic upset such as acute confusion, tachycardia, tachypnoea, hypotension or may have unstable co-morbidities that may interfere with a response to therapy or have a limb threatening infection due to vascular compromise.	Requires in-patient treatment
Class IV	Patients have sepsis syndrome or severe life-threatening infections such as necrotizing fasciitis.	

7.3 Referral Pathway for Long Term Conditions – not for initiation by primary care prescriber



Long-term conditions – treatment for these conditions will be initiated in secondary care

The following sections are empiric recommendations for common infections treated by the OPAT team. **Where culture results are available, targeted treatment should be given based on susceptibility results.**

Doses provided assume patients with normal renal function. For patients with renal impairment dose should be adjusted (see below on section OPAT antibiotics).

OPAT should be considered in the following long-term conditions – treatment for these conditions will be initiated in secondary care

- Bone and joint infections
  - Septic arthritis (native joint)
  - Prosthetic joint infection
  - Osteomyelitis (non-vertebral)
  - Vertebral osteomyelitis, discitis, epidural abscess
- Diabetic foot infection
- Endocarditis
- MSSA/MRSA bacteraemia.

Treatment notes for empirical outpatient treatment of bone and joint infection.

Indication	Likely pathogen	Antibiotic	Duration
Septic arthritis (native joint)	Staphylococci, streptococci, Enterobacteriaceae	IV Ceftriaxone 2g once daily (not if >80 yrs, previous C. difficile)	2-4 weeks of therapy with oral step down if available to complete course
		Severe penicillin allergy or MRSA positive patient: IV Teicoplanin 12mg/kg 12-hourly for 3 doses, followed by 12mg/kg once daily Add Oral Ciprofloxacin 750mg 12-hourly only if gram negative organism suspected or immunocompromised	
		Teicoplanin allergy: IV Daptomycin 6mg/kg once daily Add Oral Ciprofloxacin 750mg 12-hourly only if gram negative organism suspected or immunocompromised	

Indication	Likely pathogen	Antibiotic	Duration
Prosthetic joint infections	Staphylococci, streptococci, Gram-negative bacilli, Coagulase negative Staphylococci, enterococci, anaerobes	IV Teicoplanin 12mg/kg 12-hourly for 3 doses, followed by 12mg/kg once daily plus Oral Ciprofloxacin 750mg 12-hourly plus Oral Metronidazole 400mg 8-hourly	Second stage revision: 6 weeks of IV therapy DAIR (debridement, antibiotics, irrigation, and retention of the prosthesis): 6 weeks of IV therapy followed by oral therapy for 3-6 months
		Teicoplanin allergy: IV Daptomycin 6mg/kg once daily plus Oral Ciprofloxacin 750mg 12-hourly plus Oral Metronidazole 400mg 8-hourly	
Osteomyelitis (non-vertebral-non-diabetic patients)	Staphylococci, streptococci, Enterobacteriaceae	IV Ceftriaxone 2g once daily (not if >80 yrs, previous C. difficile)	6 weeks of IV therapy If culture biopsy results or blood culture positive discuss with Microbiology about oral option
		Alternative/ severe penicillin allergy or MRSA positive patient: IV Teicoplanin 12mg/kg 12-hourly for 3 doses, followed by 12mg/kg once daily If Enterobacteriaceae suspected, add oral Ciprofloxacin 750mg 12-hourly	
Discitis/ vertebral osteomyelitis/ epidural abscess	Staphylococci, streptococci, Enterobacteriaceae	IV Ceftriaxone 2g once daily * (not if >80 yrs, previous C. difficile)	Minimum is 6 weeks of IV therapy* *If vertebral OM, known organism and oral option available then consider switch to IV to oral switch after initial treatment and discussion with Consultant Microbiologist
		Alternative/ severe penicillin allergy or MRSA positive patient: IV Teicoplanin 12mg/kg 12-hourly for 3 doses, followed by 12mg/kg once daily * If Enterobacteriaceae suspected, add oral Ciprofloxacin 750mg 12-hourly	
		*Consider adding oral Rifampicin 300-600mg BD to both options	

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Treatment notes for empirical outpatient treatment of diabetic foot infection

Indication	Likely pathogen	Antibiotic (doses for normal renal function)	Duration
Diabetic foot infections (without osteomyelitis)	Staphylococci, streptococci, Pseudomonas, Enterobacteriaceae, anaerobes	Consider oral antibiotic treatment as per Diabetic Foot Infection guideline. If low risk for Pseudomonas infection and patient requires IV antibiotics, then consider: IV Ceftriaxone 2g once daily (not if >80 yrs, previous C. difficile) Plus Oral metronidazole 400mg 8-hourly If MRSA positive add: IV Teicoplanin 12mg/kg loading dose on Day 1 followed by 6mg/kg once daily from Day 2	2-7 days of iv therapy. Switch to oral therapy when appropriate Maximum duration of IV treatment is 2 weeks
		Alternative e.g. in severe penicillin allergy, pseudomonas positive: IV Teicoplanin 12mg/kg loading dose on Day 1 followed by 6mg/kg once daily from Day 2 plus Oral ciprofloxacin 500-750mg 12-hourly plus Oral Metronidazole 400mg 8-hourly	
Diabetic foot infections (with osteomyelitis)		IV Teicoplanin 12mg/kg 12-hourly for 3 doses, followed by 12mg/kg once daily plus Oral ciprofloxacin 500-750mg 12-hourly plus Oral Metronidazole 400mg 8-hourly	Duration of treatment is 6 weeks

Treatment notes for outpatient treatment of endocarditis

NB empirical treatment of infective endocarditis in the outpatient setting is not usually recommended- only pathogen specific treatment.

These Guidelines are for the outpatient treatment of patients with infective bacterial endocarditis (IE). For in-patient management, please discuss with consultant microbiologist or consultant cardiologist. For more detailed guidelines on the general management of patients with bacterial endocarditis, please refer to the BSAC (British Society of Antimicrobial Chemotherapy) guidelines on the diagnosis and antibiotic treatment of endocarditis in adults: a report of the Working Party of the British Society for Antimicrobial Chemotherapy.

OPAT is often considered for streptococcal endocarditis as these organisms can be less destructive with fewer complications than IE caused by other organisms such as Staphylococcus aureus and enterococci. Antibiotics such as Ceftriaxone, Daptomycin or Teicoplanin that can be given once daily IV are suitable agents.

Patients need to be carefully monitored for side effects as well as well as response to therapy.

Pathogen Specific Management

Each patient treatment should be individualised but the following can be used as a general guide. Please discuss every patient with consultant microbiologist.

<u>Streptoccoccal endocarditis</u>

Options for treatment should be determined based on the level of penicillin susceptibility and patient risk factors

Check streptococcal MIC to penicillin:

- If <or=0.125mg/l:

Inpatient regimens include: IV Benzylpencillin for 4-6 weeks; or for certain patients Benzylpenicillin and gentamicin for 2 weeks.

OPAT regimens include complete: 4-6 weeks on OPAT with IV ceftriaxone 2g OD (6 weeks if prosthetic valve). e.g. native valve, 1 week of Benzylpenicillin IV as in-patient, then 3 weeks of ceftriaxone on OPAT.
NB: Ceftriaxone regimens are not advised for patients at risk of Clostridium difficile infection.

- If MIC>0.125mg/L:

OPAT is not usually indicated. Teicoplanin could be considered in some patients after 2 weeks of initial inpatient treatment with Vancomycin or Teicoplanin (12mg/kg OD after loading) + Gentamicin (1mg/kg BD).

<u>Methicillin Sensitive Staphylococcus aureus, native-valve endocarditis:</u>
Check Vancomycin MIC, Teicoplanin MIC, Rifampicin susceptibility, Daptomycin MIC.

Complete 4 weeks treatment in total.
Complete treatment on OPAT once clinically stable as in-patient.

2 weeks: Flucloxacillin 2g QDS (6 x day if weight>85kg) as in-patient then
Teicoplannin IV 12 mg/kg OD (after loading) + Rifampicin 300-600mg BD oral for at least 2 weeks as OPAT.
Or
if patient unable to tolerate glycopeptides: Daptomycin IV (6-10mg/kg OD) + Rifampicin 300-600mg OD oral for at least 2 weeks as OPAT.

Methicillin Resistant Staphylococcus aureus, native-valve endocarditis:
Complete 4 weeks treatment in total.
Complete treatment on OPAT once clinically stable as in-patient.
Likely to have been treated with Vancomycin and Rifampicin as in-patient until stable.
Load with teicoplanin 12mg/kg, then 12 mg/kg OD + Rifampicin oral 300-600mg BD to complete 4 weeks.
Or in Vancomycin resistant, daptomycin susceptible organism or patient unable to tolerate glycopeptides: Daptomycin IV 6-10mg/kg OD + Rifampicin oral 300-600mg BD for at least 4 weeks.
.
Enterococcal endocarditis
OPAT is not usually feasible as patients will usually require 6 weeks of gentamicin as part of combination therapy. These patients are complicated, and the regimens (depending on the sensitivity of the organism) may also be complicated. If gentamicin treatment is not possible (due to renal impairment, lack of susceptibility or intolerance) AND the patient is stable, then OPAT with Teicoplanin may be considered after discussion with Consultant Microbiologist.

Treatment notes for outpatient treatment of MSSA-MRSA bacteraemia

All patients with *S. aureus* bacteraemia should have echocardiography and additional imaging as needed in order to exclude infective endocarditis and other deep-seated infections like osteomyelitis, septic arthritis, discitis etc.

Patients with a removable focus of infection e.g. line infection could be candidates for OPAT. Duration of treatment will be at least 2 weeks of IV antibiotics from the first negative blood culture.

Patients with deep seated infection could also be candidates for OPAT but will require longer courses of IV antibiotics and sometimes combination therapy. Please discuss with Consultant Microbiologist about options.

Pathogen	Treatment (doses for normal renal function)	Duration
MSSA	IV Teicoplanin 12mg/kg 12-hourly for 3 doses, followed by 12mg/kg once daily OR IV Ceftriaxone 2g once daily (not if >80 yrs, previous C. difficile)	Duration of treatment is at least 2 weeks of

MRSA	IV Teicoplanin 12mg/kg 12-hourly for 3 doses, followed by 12mg/kg once daily OR Daptomycin 6-10mg/kg once daily	IV treatment from the first negative blood culture

8. OPAT Antibiotics

NB: For all medications the patient's allergy status should be confirmed before prescribing and administering. If it is found the patient has a confirmed allergy/hypersensitivity this should be discussed with the Consultant Microbiology or Antimicrobial Pharmacist for advice.

Ceftriaxone

Indications	Endocarditis, bone and joint infections, diabetic foot infection, MSSA bacteraemia
Cautions and contraindications	Consider alternative if history of type 1 penicillin hypersensitivity **Avoid in patients at high risk of Clostridium difficile**
Dosage	2g once daily
Administration	Can be administered by: IV injection or IM injection.
Adjustment for renal/hepatic function	No adjustment required for renal function if hepatic function intact. No adjustment for hepatic impairment unless renal impairment
Notes	For further administration instructions refer to: Medusa injectable guide

Daptomycin

Indications	Endocarditis, severe infection caused by Gram positive bacteria
Cautions and contraindications	May cause increase in CK with associated myopathy and rhabdomyolysis. Baseline CK should be checked with other routine bloods before initiation and then once weekly. Patients on medicines associated with myopathy (eg statins) and with renal impairment (CrCl < 80ml/min) will require twice weekly monitoring (consideration may be given to withholding the medicine until Daptomycin complete)
Dosage	Initially 6mg/kg once daily increasing to 12mg/kg if necessary (doses greater than 6mg/kg are off license)
Administration	IV infusion
Adjustment for renal/hepatic function	Adjustment of dosing interval is required if CrCl < 30ml/min – dose 4mg/kg every 48 hours Caution required if severe hepatic impairment (Childs Pugh C)
Notes	For further administration instructions refer to: Medusa injectable guide May cause false prolongation of INR. For patients on warfarin check INR immediately before next dose of Daptomycin

Ertapenem

Indications	Upper and lower urinary tract infection, including ESBL's; cellulitis in patients requiring broad spectrum antibiotic; bone and joint infections
Cautions and contraindications	Consider alternative if history of type 1 penicillin hypersensitivity
Dosage	1g daily
Administration	IV infusion
Adjustment for renal/hepatic function	If the patient has renal impairment: eGFR < 30ml/min the daily dose should be reduced to 500mg OD No dose adjustment required if hepatic impairment
Notes	For further administration instructions refer to: Medusa injectable guide

Teicoplanin

Indications	Cellulitis; bone and joint infections; endocarditis; severe infection caused by Gram positive bacteria		
Cautions and contraindications	In rare cases red man syndrome may occur. May be limited if infused over 30minutes rather than injection. Ototoxicity has been reported in patients treated with Teicoplanin.		
Dosage	**Indication**	**Loading dose**	**Maintenance dose**
	- Complicated skin and soft tissue infections - Complicated urinary tract infections caused by gram positive organisms like enterococcus sp	**Inpatient** Body weight up to 70kg: 400mg 12 hourly for three doses Body weight over 70kg: 6mg/kg (rounded to nearest 200mg) 12 hourly for three doses	Body weight up to 70kg: 400mg once daily Body weight over 70kg: 6mg/kg once daily
		Outpatient Body weight up to 70kg: 800mg stat Body weight over 70kg: 12mg/kg (rounded to nearest 200mg) stat	
	Notes: *Dose adjustment is required for patients with renal impairment if		

<table>
<tr><td></td><td colspan="3">treatment with teicoplanin to be continued more than 4 days.</td></tr>
<tr><td></td><td>- Bone and joint infections</td><td>This will be administered while inpatient:
12 mg/kg 12hourly for three doses.
Round dose to nearest 200mg</td><td>12 mg/kg body weight daily</td></tr>
<tr><td></td><td>- Infective endocarditis</td><td>This will be administered while inpatient:
12 mg/kg 12hourly for three doses.
Round dose to nearest 200mg</td><td>12 mg/kg body weight daily</td></tr>
<tr><td>Administration</td><td colspan="3">IV injection over 3-5 minutes. Doses > 800mg should be administered by IV infusion.</td></tr>
<tr><td>Adjustment for renal/hepatic function</td><td colspan="2">Creatinine clearance
(eGFR may be used but should be adjusted for BSA)</td><td>Dose adjustment - dose adjustment is not required days 1-4. Adjust dose from day 5 of therapy</td></tr>
<tr><td></td><td colspan="2">30-80ml/min</td><td>Teicoplanin dose should be halved, either by administering the initial unit dose every two days, or by administering half of this dose once a day</td></tr>
<tr><td></td><td colspan="2"><30ml/min and in haemodialysis patients</td><td>Teicoplanin dose should be one third of the normal either by administering the initial unit dose every third day, or by administering one third of this dose once a day</td></tr>
<tr><td>Notes</td><td colspan="3">For further administration instructions refer to: Medusa injectable guide

Monitoring levels
Teicoplanin level should be taken <u>prior to the 4th dose being given</u> (after completion of the loading dose regimen). Withholding the dose is not required whilst waiting for levels – levels may take several days to come back as they are sent away for analysis.

During maintenance treatment, teicoplanin trough serum concentrations monitoring may be performed at least once a week to ensure that these concentrations are stable:

<table>
<tr><th>Type of infection</th><th>Recommended pre-dose level</th><th>Re-assay interval</th></tr>
<tr><td>Skin and soft tissue infection</td><td>Pre-dose: 15-30 but <60 mg/L</td><td>6-8 days (assuming initial results are within</td></tr>
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			expected range)
	Bone and joint infection	Pre-dose: 20-40 but <60 mg/L	6-8 days (assuming initial results are within expected range)
	Infective endocarditis	Pre-dose: 30-40 but <60 mg/L	6-8 days (assuming initial results are within expected range)

9. Routine laboratory monitoring
Routine monitoring of patients receiving intravenous antibiotics should include weekly or as frequently as specified by the treatment plan on discharge:

- Full blood count
- Urea, electrolytes and creatinine
- Liver function tests
- ESR – where required eg bone infections
- CRP
- Creatine kinase (CK) for patients prescribed daptomycin (baseline and weekly CK levels recommended)
- Teicoplanin pre-dose level if prescribed teicoplanin.

More frequent monitoring may be required depending on the test results.
In addition, patients should be monitored for adverse effects, complications or adverse outcomes. Such information should be recorded in the patient's medical records.

10. Outcome measures and assessments
Treatment outcome should be evaluated at the end of IV therapy based on clinical assessments by the clinicians and recorded in the patients notes.

Treatment success
The following definitions include treatment success:

- cure or complete resolution of infection, where no oral follow-on was deemed necessary
- improvement or partial resolution of infection, where IV therapy was switched to oral follow-on therapy
- no early termination of treatment due to adverse effects or safety concerns experienced by the patients
- no unplanned hospital admission.

Treatment failure
Treatment failure is defined as interruption or discontinuation of therapy as defined by one or more of the following criteria:

- lack of efficacy or failure to elicit significant improvement
- development of toxicity

- unplanned hospitalisation (including the need for surgical intervention)
- death.

11. Responsibilities

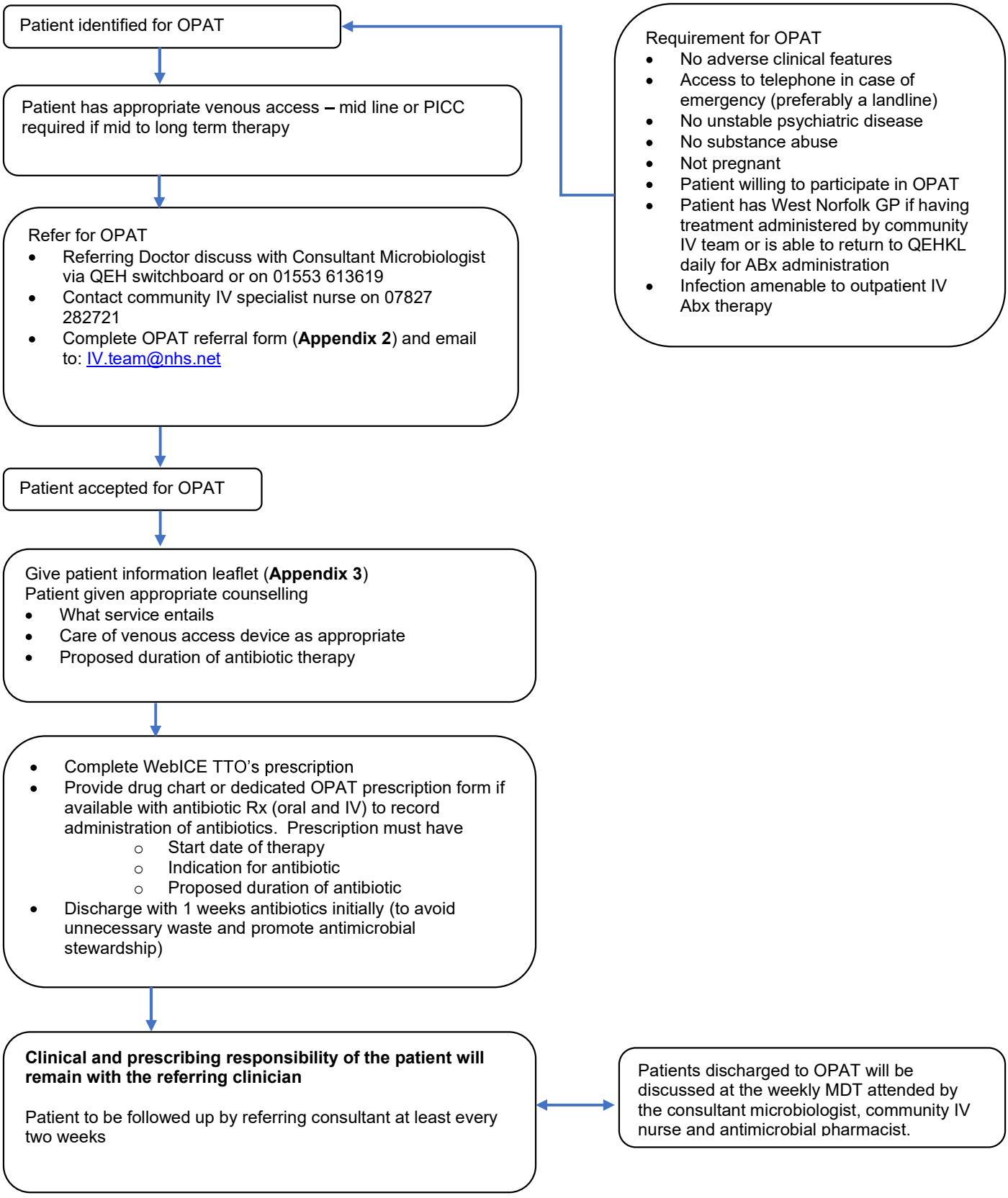
Clinical and prescribing responsibility of the patient will remain with the referring clinician

- The name of the clinician/team responsible for the review of the patient, together with the next review date, should be clearly stated on the OPAT referral form.
- All patients will be reviewed weekly in a virtual ward round.
- The referring clinician will be invited to the virtual ward rounds.
- All patient should be reviewed at least every 1week by the referring team at the outpatient setting.

Discharge summaries, notification of completion of therapy and further follow up/ management plan should be communicated to the GP .

All OPAT patients should have a clear pathway for 24hours immediate access to advice/review agreed with the referring clinician, and this should be communicated to the patient both verbally and in writing.

12. Process for Referring patients to OPAT service



13. Monitoring compliance

To ensure that this document is compliant with the above standards, the following monitoring processes will be undertaken:

The patients should be discussed weekly in a virtual ward round. The patients should have outpatient review at least once a week by the referring team. The patient reviews undertaken by the community IV team is be documented on system one.

Audit should be undertaken annually with case note review to determine if patients were appropriately referred and if enrolled successfully maintained on the service. Clinical audit may include the following:

- number of patients enrolled onto the service
- length of IV treatment
- adverse effects and complications
- readmission rates
- clinical outcome

Patient satisfaction should also be reviewed regularly and where there are complaints or dissatisfaction with the service, these will be discussed at the OPAT- Microbiology clinical governance meetings.

14. Summary of development and consultation process undertaken before registration and dissemination

The authors listed above drafted this document on behalf of Dr Eleni Tsiouli (consultant microbiologist) and Jonathan Kerr (consultant microbiogist) who have agreed the final content. During its development it has been circulated for comment to the Community IV Team, NCHC.

This version has been endorsed by the Antimicrobial Stewardship Group.

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- Guidance on the Pharmaceutical Issues concerning OPAT (Outpatient Parenteral Antibiotic Therapy) Services and other Outpatient Intravenous Therapies April 2018 NHS Pharmaceutical Quality Assurance Committee 2018

16. Associated Documentation

- Antimicrobial guideline for Treatment of Common infections.
- Diabetic foot infection guideline

17. Equality Impact Assessment (EIA)

An EIA **MUST** be completed for **all documents** and submitted with the final document will not be made live on internal websites

MONITORING COMPLIANCE

Key elements	Process for Monitoring	By Whom (Individual / group /committee)	Responsible Governance Committee /dept	Frequency of monitoring
Appropriate referral	Annual review	Consultant microbiologist		Annual

Appendices

Appendix 1**.**

EQUALITY IMPACT ASSESSMENT

STAGE 1 - SCREENING

Name & Job Title of Assessor: David Homer Associate Chief Pharmacist	**Date of Initial Screening:** June 2022 **Date of Review:** June 2025
Policy or Function to be assessed:	

		Yes/No	**Comments**
1.	**Does the policy, function, service or project affect one group more or less favourably than another on the basis of:**	N	
	Race & Ethnic background	N	
	Gender including transgender	N	
	Disability:- This will include consideration in terms of impact to persons with learning disabilities, autism or on individuals who may have a cognitive impairment or lack capacity to make decisions about their care	N	
	Religion or belief	N	
	Sexual orientation	N	
	Age	N	
2.	**Does the public have a perception/concern regarding the potential for discrimination?**	N	

If the answer to any of the questions above is yes, please complete a full Stage 2 Equality Impact Assessment.

Signature of Assessor: David Homer Date: 28.06.2022

Signature of Line Manager: Nicola Berns Date: 28.06.2022

STAGE 2 – EQUALITY IMPACT ASSESSMENT

If you have indicated that there is a negative impact on any group in part one please complete the following, is that impact:

		Yes/No	Comments
1.	**Legal/Lawful under current equality legislation?**		
2.	**Can the negative impact be avoided?**		
3.	**Are there alternatives to achieving the policy/guidance without the impact?**		
4.	**Have you consulted with relevant stakeholders of potentially affected groups?**		
5.	**Is action required to address the issues?**		

It is essential that this Assessment is discussed by your management team and remains readily available for inspection. A copy including completed action plan, if appropriate, should also be forwarded to the Equality & Diversity Lead, c/o Human Resources Department.

Appendix 2 Referral Form

Patient Name	**Consultant details**
Address **Postcode**	**Ward** **Contact No.** **Bleep and mobile phone** **GP details**
Date of Birth	**Practice**
Hospital/NHS No.	**Contact No.**
Telephone No.	**Referral Date**

Diagnosis requiring IV therapy	
Current antibiotic prescription (including oral antibiotics)	
Organisms isolated (if any) Date of specimen	
Proposed duration of treatment (including oral antibiotics)	
Microbiology contacted **Name of Consultant Microbiologist**	☐Yes
Type of venous access	Midline ☐ Cannula ☐ PICC ☐ Hickman ☐
Past Medical History	
Known drug allergies? Specify nature of reaction if known	

Referring Doctor:	**Print Name**	**Bleep**
Reviewing Doctor/Team:	**Print Name**	**Date of Next Review**

For use by OPAT team Date reviewed……	Appropriate for OPAT	☐Yes	☐No
If appropriate Proposed discharge date…… Proposed duration of OPAT……..	Proposed OPAT treatment…….		
If not appropriate indicate reason ☐Home on oral antibiotics ☐Stopped therapy ☐Lack of availability (OPAT team)	☐Unsuitable (home environment) ☐Other……	☐Unsuitable (medical)	

Appendix 3

Outpatient Parenteral Antibiotic Therapy (OPAT) Patient Information Leaflet

What is OPAT?
Antibiotics are medications that are used to treat infectious conditions, particularly bacterial infections but also fungal and viral. These may be given by mouth or intravenously (IV). Occasionally they may be given intramuscularly. IV antibiotics are usually given to patients in hospital but, in certain conditions, they may be given at home. This is called outpatient parenteral antibiotic therapy (OPAT).

How do you receive IV antibiotics?
There are several ways for IV antibiotics to be administered. The simplest way is through a line called a cannula. This is a flexible hollow plastic tube which is inserted into the vein using a needle. The needle is removed and the cannula is left in place and secured using a dressing. There are alternatives if this method is not suitable. Your doctor or nurse will decide which one is most suitable for you, depending on your veins and how long you will need IV antibiotic therapy. They will provide you with the relevant information and explain how the line will be inserted.

Do I have to remain in hospital or can I be at home for my IV treatment?
IV antibiotic therapy is usually initiated in hospital. Once established on treatment and if appropriated for the OPAT service the remainder of treatment can be given safely at home. Occasionally it may be initiated to avoid admission to hospital entirely.

When will I see a doctor?
You will see a doctor frequently during the course of your treatment. If your GP has referred you to the OPAT service they will follow up your care. If a consultant at the hospital has started treatment they will follow up your care. In any case you will be advised each time an appointment has been arranged for you to attend the doctor.

Who will give me the IV antibiotics and care for my intravenous access?
A specialist nurse will see you every day and give you the IV antibiotics. The nurse will also check your temperature, pulse and blood pressure and care for the cannula or other intravenous access. This involves flushing the line before and after giving the IV antibiotic, examining and cleaning the exit site and changing the dressing as and when required.

How can I help to care for my line?
The exit site of the cannula will be covered by a transparent dressing and should be kept clean and dry in order to prevent infection. You should avoid excessive movement of the arm, or heavy lifting, as this may dislodge the line. If you notice any problems with your line, please contact your IV nurse as soon as possible.

Can I have a bath/shower or go swimming?
You can have a bath or shower provided that the line is kept clean and dry. The line should not be immersed in the bath. If the dressing becomes wet underneath, please let the OPAT nurse know. Swimming is not recommended because the line may become dislodged or infected.

How is the line removed when it is no longer needed?
A nurse or doctor will remove the line when it is no longer needed. A sterile dry dressing will be placed at the exit site to protect it. This can be removed after 24 hours.

Benefits
The benefit to you is that you will be able to be at home rather than in hospital during the course of your IV antibiotic therapy.

Risks
The risks of having outpatient IV antibiotic therapy are very low. You will be carefully assessed before you start the treatment and monitored by the IV antibiotic team while you are receiving your treatment.

How will I know if something is wrong?
Complications are rare, but you may experience a reaction to the IV antibiotic or a problem with the IV cannula, such as infection or blockage. It you develop a drug rash, diarrhoea or if you have concerns about the IV antibiotic or the IV cannula, please do not hesitate to contact the OPAT nurse or doctor for advice – contact details are detailed below. If you develop a severe rash with swelling and/or difficulty breathing, call '999' for an ambulance or go to the nearest hospital Accident and Emergency Department.

Alternatives
The alternative to having OPAT is to remain in hospital for the duration of your antibiotic treatment.

Contacts/Further Information

OPAT Nurse: 07827 282721 Monday to Sunday 08:00 to 20:00:

If outside of these hours, please contact out of hours helpline (111) in the first instance.
Appendix 4

Appendix 4 GP practices covered by OPAT

Name of Surgery	Address	Tel No
Bridge Street Surgery	Downham Market, Norfolk PE38 9DH	01366 388888
	Dr Scott, Dr Gent, Dr Holmes, Dr Wearmouth, Dr Hohnsbein	
Boughton	The Surgery, Chapel Road, Boughton, Norfolk PE33 9AG	01366 500331
	Dr Simpson, Dr Knott	
Burnham Market	The Surgery, Church Walk, Burnham Market, Norfolk, PE31 8DH	01328 737000
	Dr Gorrod, Dr Brudenell, Dr Caswell, Dr Ince	
Campingland	The Surgery, Campingland, Swaffham, Norfolk, PE31 7RD	01760 721211
	Dr Mark Holmes, Dr Nicola Holmes, Dr Musson, Dr Cromarty, Dr Lawrence, Dr Chakrabarti	
Carole Brown Health Centre	St Nicholas Court, Dersingham, Norfolk	08444 773377
	Dr S Summers, Dr Zubair Alam, Dr Ynni, Dr Vaughan-William, Dr Ince	
Docking Surgery	Bradmere Lane, Docking, King's Lynn	01485 521135
	Dr Burgess, Dr Hall	
Downham Market Health Centre	Paradise Road, Downham Market, Norfolk, PE39 9JE	01366 389289
	Dr Nimako, Dr Bhupathi, Beverley Evans (Nurse Practitioner)	
Fairstead	The Surgery, Centre Point, Fairstead, King's Lynn, Norfolk PE30 34SR	01553 772063
	Dr Syed Ahmed, Dr Salam Ahmad, Dr Lata Motwani	
Feltwell	The Surgery, Old Brandon Road, Feltwell, Thetford, Norfolk, IP26 4AY	01842 828481
	Dr Hughes, Dr Sagar, Dr Pullen	
Gayton Road Health and Surgical Centre	Gayton Road, King's Lynn, Norfolk, PE30 4DY	08444 773377
	Dr Allen, Dr Biran, Dr Chaudhry, Dr Cupper, Dr De, De Deol, Dr Devulapalli, Dr Funnell, Dr Gawens, Dr Mitra, Dr Nowers	
Gooderstone	C/O Mrs Manning, 8 Church View, Gooderstone	
Great Massingham	The Surgery, Station Road, Great Massingham, Norfolk, PE32 2JQ	01485 520521
	Dr Burgess, Dr Phillips, Dr Black, Dr Hall	
Grimston	Grimston Medical Centre, Conghan Road, Grimston, Norfolk, PE32 1DW	01485 600341
	Dr Michal Archer, Dr Judy Scott, Dr Angela Clifton	
Heacham Group Practice	46 Station Road, Heacham, Norfolk, PE31 7EX	01485 572769
	Dr Lake, Dr Russell, Dr Clifton, Dr Tyabji, Dr Garg	
Howdale Surgery	Howdale Road, Downham Market, Norfolk, PE38 9AF	01366 383405
	Dr Sconce, Dr Garner, Dr Heighton, Dr Koteeswaran, Dr Macichan	
Hunstanton	The Surgery, Valentine Road, Hunstanton PE36 5DN	01485 532859
	Dr Thorpe, Dr Kraaijeveld, Dr Bakka	
Litcham	The Health Centre, Manor Drive, Lithcham, Norfolk, PE32 2NW	01328 701568
	Dr Alan Collett, Dr Julian Brown, Dr Anne Basketts, Dr Rachel Carroll, Dr Sarah Ray	
Maltings	Narborough, Norfolk, PE32 1TE	01760 337821
Manor Farm Medical Centre	Mangate Street, Swaffham, Norfolk, PE37 7QN	01760 721786
	Dr Haczewski, Dr Killeen, Dr M Skinner, Dr Higgins, Dr J Skinner	

Name of Surgery	Address	Tel No
Marham Surgery	The Surgery, The Street, Marham, Norfolk, PE33 9HP	01760 337394
	Dr Hart	
Northwold	Old Village Hall, School Lane, Northwold, Norfolk	
Oak Farm Surgery	North Pickenham Road, Necton, Swaffham, PE37 8EF	01760 441361
Plowright Medical Centre	1 Jack Boddy Way, Swaffham, Norfolk PE37 7HJ	01760 722797
	Dr Sorensen-Pound, Dr Dorlin, Dr Thorpe	
Plowright Surgery	North Pickenham Road, Necton, Swaffham, Norfolk	01760 441344
RAF Marham Medical Centre	Regional Medical Centre, RAF Marham, King's Lynn, Norfolk, PE33 9NP	01760 337261 ext 7226
	Dr Webster, Dr Rose, Dr Davies	
Snettisham	The Surgery, Common Road, Snettisham, Norfolk, PE31 7PE	01485 572769
Southgates Medical and Surgical Centre	41 Goodwins Road, King's Lyn, Norfolk, PE30 5QX	01553 819477
	Dr Heath, Dr Lazarus, Dr Atkinson, Dr Hotchin, Dr Connolly, Dr McKenzie, Dr Bendre, Dr Delves, Dr Chandler, Dr Lidgey	
St Augustine's Healthy Living Centre	Columbia Way, King's Lynn, PE30 2LB	01553 769614
St James' Medical Practice	County Court Road, King's Lynn, Norfolk, PE30 5SY	01553 774221
	Dr Tasker, Dr Sherwood, Dr Galloway, Dr Redhead, Dr Patel, Dr Tigchelaar, Dr Nicholls, Dr Moussakou, Dr Greenwood, Dr Asif, Dr Walsh	
Stoke Ferry	The Community Centre, Wretton Road, Stoke Ferry	
Terrington St Clement	The Surgery, 24 Marshland Street, Terrington St Clement, Norfolk, PE34 4NE	01553 828475
Terrington St Clement (Rose Cottage)	Rose Cottage, 26 Marshland Street, Terrington St Clement, Norfolk, PE34 3NE	01553 828884
Terrington St John's Surgery	Main Road, Terrington St John, Wisbech, Cambridgeshire, PE14 7RR	01945 880471
	Dr Karunaratne, Dr Ariffin, Dr Mccray, Dr Atcheson, Dr Ehdego, Dr Lines, Dr Vineet	
Upwell Health Cantre	Townley Close, Upwell, Wisbech, Cambridgeshire, PE14 9BT	019485 773671
	Dr Millard, Dr Bevan, Dr Williams, Dr Clarke, Dr Blundell, Dr Haine	
Watlington Medical Centre	Rowan Close, Watlington, Norfolk, PE33 0TU	01553 810253
Willow Lodge	Hilgay, Downham Market, Norfolk	01366 388888
Wootons Surgery	Priory Lane, North Wootton, King's Lynn, Norfoolk, PE30 3PT	01553 631469
	Dr Hopkin, Dr Sharif	

Appendix 5

Patient outcome form

Outcome at end of IV antibiotics	
Infection cured	Yes ☐ No ☐
Infection improved	Yes ☐ No ☐
No change in infection	Yes ☐ No ☐
Infection worse	Yes ☐ No ☐
Oral follow-on treatment	Yes ☐ No ☐
Patient re-admitted to hospital If yes, enter date of admission	Yes ☐ No ☐ __ / __ / ____ dd / mm / yyyy
Patient died If yes, enter date of death	Yes ☐ No ☐ __ / __ / ____ dd / mm / yyyy
Completion of IV antibiotic therapy	
Did the patient complete the IV antibiotic course? If no, please complete the following questions:	Yes ☐ No ☐
IV antibiotics no longer required	Yes ☐ No ☐
Non-compliance	Yes ☐ No ☐
Complication	Yes ☐ No ☐
Other reason If yes, please specify	Yes ☐ No ☐
Complications	
Did the patient develop any complications? If yes, complete the following questions:	Yes ☐ No ☐
Drug rash	Yes ☐ No ☐
Drug-induced laboratory abnormality If yes, please specify	Yes ☐ No ☐
Clostridium difficile diarrhoea	Yes ☐ No ☐
Line-related complication If yes, please specify	Yes ☐ No ☐
Other complication If yes, please specify	
Patient satisfaction	
Is the patient satisfied with the OPAT service?	Yes ☐ No ☐
Would the patient have OPAT again?	Yes ☐ No ☐
Would the patient recommend OPAT to others?	Yes ☐ No ☐
Other comments	
Assessment completed by	
Name:	Pager:
Date:	Telephone: