Adult primary care
Cellulitis guideline

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SWECS adult primary care Cellulitis guidance
Community Cellulitis Pathway (CCP)

Introduction

Cellulitis is an acute, non-contagious bacterial infection of the skin and soft tissue characterised by inflammation, pain and tenderness. Bacteria spread beyond the dermis, deep into subcutaneous tissues and may follow a skin abrasion or other similar trauma. It can be life threatening if not managed appropriately.

In 2008-9 there were 82,113 hospital admissions in England and Wales from cellulitis, lasting a mean length of 7.2 days and an estimated £133m was spent on bed stay alone; Cellulitis accounted for 1.6% of emergency hospital admissions during 2008-9.

This pathway will enable more patients to remain in their own home and be cared for by the community team rather than being admitted to hospital. By using best practice in prescribing and treatment, patients are supported to recover quickly and recurrence should reduce.

The classification system

Eron LJ devised this classification system of skin and soft tissue infections to aid the GP/Nurse diagnosis, treatment and admission decisions.

<table>
<thead>
<tr>
<th>Class 1</th>
<th>Patients have no signs of systemic toxicity, have no uncontrolled co-morbidities and can usually be managed with oral antimicrobials on an outpatient basis.</th>
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</thead>
<tbody>
<tr>
<td>Class 2</td>
<td>Patients are either systemically ill (i.e. have a temperature &gt; 37.9°C or are vomiting) or are systemically well and have a co-morbidity which may complicate or delay resolution of their infection such as:</td>
</tr>
<tr>
<td></td>
<td>• Peripheral vascular disease</td>
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<td></td>
<td>• Treated diabetes or BGM &lt; 11</td>
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<tr>
<td></td>
<td>• Chronic venous insufficiency</td>
</tr>
<tr>
<td></td>
<td>• Morbid obesity (i.e. BMI &gt; 40)</td>
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<tr>
<td></td>
<td>• Liver cirrhosis</td>
</tr>
<tr>
<td>Class 3</td>
<td>Patients may have a significant systemic upset (i.e. acute confusion, heart rate &gt; 99/min, respiratory rate &gt; 20/min, systolic BP &lt; 100mmHg) or may have unstable co-morbidities that may interfere with a response to therapy (i.e. uncontrolled diabetes; renal/liver failure) or have a limb threatening infection due to vascular compromise (i.e. varicose ulcer, peripheral vascular disease with critical ischemia or arterial ulcer)</td>
</tr>
<tr>
<td>Class 4</td>
<td>Patients have a systolic BP of &lt; 90mmHg or other features of severe sepsis or life threatening infection, such as necrotizing fasciitis (NB: Such patients may need surgery)</td>
</tr>
</tbody>
</table>

Note: Clinical findings alone are usually adequate for diagnosing cellulitis, particularly in non-toxic immunocompetent patients. The prescriber must assess the patient and decide upon the classification and management options before prescribing.
Complicated and uncomplicated cellulitis

Only uncomplicated cellulitis is suitable for treatment in the community. This includes Class I & II of the above classification i.e. localised inflammation as a result of skin and soft tissue infection that involves superficial tissues. Uncomplicated cellulitis is usually caused by a single organism, mono-microbial, secondary to streptococci and carries an excellent prognosis. Most patients with uncomplicated cellulitis will respond well to standard oral antibiotics. However, those patient who cannot tolerate oral medications, or are nil by mouth, or do not respond to oral therapy may be selected for outpatient intravenous antibiotics.

If cellulitis recurs following a course of treatment, speak to microbiology for advice.

Complicated cellulitis is unsuitable for treatment in the community and all cases should be managed in an acute hospital. This includes Class III & IV of the above classification i.e. invasion of deep tissues, polymicrobial type 1 fasciitis, and severe infections seen in diabetic patients, usually related to feet infection. This may be associated with profound systemic upset requiring supportive therapy and surgical intervention in addition to intravenous antibiotics e.g. cellulitis associated with gangrene, necrotizing fasciitis, myonecrosis, abscess formation, diabetic foot ulcer, trauma and infected burns.

Guidance for diagnosis and treatment

Clinical history
- Past and current medical history
- Previous episodes of cellulitis
- Duration of present episode
- Symptoms of fever
- Itching
- History of local lesions, insect bites, indwelling device, IV drug abuse, injury
- History of other predisposing conditions e.g. diabetes, lymphoedema,
- Immunosuppression
- History of allergies to penicillin, or cephalosporins
- Social and domestic circumstances

Clinical examination
- Outline visible margin of cellulitis with indelible marker to allow subsequent clinical assessment of progress. Photograph if appropriate.
- Temperature; Blood pressure.
- Signs of septicaemia i.e. severe pyrexia, tachycardia, hypotension, confusion, tachypnoea, vomiting

Local clinical presentation
- Unilateral or bilateral; bilateral cellulitis is a rare entity and usually reflects a misdiagnosis of bilateral venous eczema.
- Eczematous or cellulitic or both
- Evidence of deep vein thrombosis
- Lymphangitis, tender regional lymphadenopathy

Predisposing causes
- Lymphoedema, ulcer, lipodermatosclerosis, varicose veins, reduced peripheral pulses
- Toeweb scaling suggestive of candida or tinea
- Injury including insect bites, indwelling device
Complicating clinical conditions
- Cardiac failure
- Pneumonia
- Underlying malignancy
- Diabetes
- MRSA carriage
- Immunodeficiency
- Liver or renal failure

Differential diagnosis
- Varicose eczema which is often bilateral with crusting, scaling and itch or other lower leg eczema
- DVT with pain and swelling without significant erythema
- Chronic inflammatory response in chronic venous disease and Acute liposclerosis may have pain, redness and swelling in the absence of significant systemic upset
- Other differential diagnosis include lower leg oedema with secondary blistering, erythema nodosum, other panniculities or vasculitis and pyoderma gangrenosum

Complications
- Fasciitis
- Myositis
- Subcutaneous abscesses
- Septicaemia
- Post streptococcal nephritis
- Death

Inclusion criteria for IV therapy in the community
- Presenting with clinical signs of cellulitis – Eron’s class/severity recorded as I or II
- 18 years or older
- Competent to make a decision, give consent and to understand and adhere to the treatment plan
- Can independently carry out activities of daily living or has support from carers
- Registered with a GP in this area or residing within South West Essex

Exclusion criteria (unless appropriately assessed and referred by secondary care)
- Pregnancy
- History of treatment of cellulitis in the same extremity during the preceding month
- Cellulitis covering more than half a limb
- Cellulitis of the face/peri-orbital cellulitis/cellulitis of the hand
- Signs of rapid extension or severe pain out of proportion to the clinical symptoms – refer to secondary care, could indicate necrosis.
- Immunocompromised patients
- MRSA positive (refer to microbiology)
- Current Clostridium difficile infection (refer to microbiology)
- Hypersensitivity / contraindications to all of the treatment options (refer to microbiology)
- Patient is IV drug user and oral antibiotics are not sufficient

Investigations
Blood should be taken at the time of cannulation and results should be reviewed and appropriate action taken, within 48 hours
- Full Blood Count (FBC).
- Urea and Electrolytes (U&E).
- Creatinine Kinase (CK) (for patients prescribed Daptomycin)
- Liver Function Test (LFT).
- C-reactive Protein (CRP).
- Glucose.
- INR if appropriate

Blood cultures should not be undertaken routinely as only 2-4% are positive and contaminants may outnumber pathogens.

There is no need to swab intact skin. Culture any skin break / ulceration / blister fluid.

Please note: Patient specific microbiology advice, following cultures or for complex patients, must be followed in preference to the generic treatment described in this guidance.
Flow chart 1: Community cellulitis management pathway

**Diagnosis**

<table>
<thead>
<tr>
<th>Class</th>
<th>Description</th>
<th>Actions</th>
</tr>
</thead>
</table>
| I     | (suitable for self-management at home with oral medication) |   - Prescribe Abx as per [table 1](#)  
   - Consider analgesia.  
   - Issue cellulitis information leaflet
   - Follow-up after 7 days or as required  
   - Remove compression hosiery for duration of the cellulitis |
| I or II | (suitable for IV management in the community) |   - Prescribe IV Abx as per [table 1](#)  
   - Consider analgesia.  
   - Refer to community services (appendix D)  
   - Issue cellulitis information leaflet
   - Follow-up after 4 days or as required  
   - Refer to specialist services
   - Remove compression hosiery for duration of the cellulitis |
| III or IV | Immediate referral to secondary care | |

**Community care referral criteria**

(class I or II patients)

- **Day Hospital/Integrated community team**
  - Administration of IV antibiotics  
  - Additional healthcare input required to support or supplement existing social care package  
  - Medication compliance / review of patient condition / response to therapy

- **Community Hospital/Nurse led unit**
  - Administration of IV antibiotics  
  - Patient cannot be supported at home  
  - Closer monitoring by nursing staff is considered necessary  
  - Domestic environment is clinically unsuitable

**Review patient 48 hours after starting therapy**

<table>
<thead>
<tr>
<th>Symptoms/signs improve</th>
<th>Deterioration or no improvement after 48 hours of IV therapy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Continue antibiotics as per recommendations</td>
<td>Speak to microbiology and refer to secondary care as appropriate</td>
</tr>
</tbody>
</table>

1. **Caution**: Face/orbit involvement/signs of septicaemia refer to acute hospital.

2. Active compression therapy should be reassessed and only reapplied once the cellulitis has been fully resolved as it can worsen the infection and cause further complications.

3. Referral to specialist services should be considered at all stages in the patient’s journey e.g. Diabetes service if BGM is raised, Tissue viability nurses if a wound is present, etc.

4. Agree a maintenance plan with Multi-Disciplinary Team e.g. GP; Community Matron; District Nurses (ICT); Self-referral of exacerbation

5. Systemically the patient may improve although the redness in the affected area may remain, the redness may take longer to resolve.
Table 1: Antibiotic guidance for the treatment of cellulitis in the community\textsuperscript{a},\textsuperscript{b},\textsuperscript{c},\textsuperscript{d},\textsuperscript{e},\textsuperscript{f},\textsuperscript{g},\textsuperscript{h},\textsuperscript{i},\textsuperscript{j},\textsuperscript{k},\textsuperscript{l},\textsuperscript{m},\textsuperscript{n},\textsuperscript{o},\textsuperscript{p},\textsuperscript{q},\textsuperscript{r},\textsuperscript{s},\textsuperscript{t},\textsuperscript{u},\textsuperscript{v},\textsuperscript{w},\textsuperscript{x},\textsuperscript{y},\textsuperscript{z},\textsuperscript{aa},\textsuperscript{ab},\textsuperscript{ac},\textsuperscript{ad},\textsuperscript{ae},\textsuperscript{af},\textsuperscript{ag},\textsuperscript{ah},\textsuperscript{ai},\textsuperscript{aj},\textsuperscript{ak},\textsuperscript{al},\textsuperscript{am},\textsuperscript{an},\textsuperscript{ao},\textsuperscript{ap},\textsuperscript{aq},\textsuperscript{ar},\textsuperscript{as},\textsuperscript{at},\textsuperscript{au},\textsuperscript{av},\textsuperscript{aw},\textsuperscript{ax},\textsuperscript{ay},\textsuperscript{az},\textsuperscript{ba},\textsuperscript{bb},\textsuperscript{bc},\textsuperscript{bd},\textsuperscript{be},\textsuperscript{bf},\textsuperscript{bg},\textsuperscript{bh},\textsuperscript{bi},\textsuperscript{bj},\textsuperscript{bk},\textsuperscript{bl},\textsuperscript{bm},\textsuperscript{bn},\textsuperscript{bo},\textsuperscript{bp},\textsuperscript{bq},\textsuperscript{br},\textsuperscript{bs},\textsuperscript{bt},\textsuperscript{bu},\textsuperscript{bv},\textsuperscript{bw},\textsuperscript{bx},\textsuperscript{by},\textsuperscript{bz},\textsuperscript{ca},\textsuperscript{cb},\textsuperscript{cc},\textsuperscript{cd},\textsuperscript{ce},\textsuperscript{cf},\textsuperscript{cg},\textsuperscript{ch},\textsuperscript{ci},\textsuperscript{cj},\textsuperscript{ck},\textsuperscript{cl},\textsuperscript{cm},\textsuperscript{cn},\textsuperscript{co},\textsuperscript{cp},\textsuperscript{cq},\textsuperscript{cr},\textsuperscript{cs},\textsuperscript{ct},\textsuperscript{cu},\textsuperscript{cv},\textsuperscript{cw},\textsuperscript{cx},\textsuperscript{cy},\textsuperscript{cz},\textsuperscript{da},\textsuperscript{db},\textsuperscript{dc},\textsuperscript{dd},\textsuperscript{de},\textsuperscript{df},\textsuperscript{dg},\textsuperscript{dh},\textsuperscript{di},\textsuperscript{dj},\textsuperscript{dk},\textsuperscript{dl},\textsuperscript{dm},\textsuperscript{dn},\textsuperscript{do},\textsuperscript{dp},\textsuperscript{dq},\textsuperscript{dr},\textsuperscript{ds},\textsuperscript{dt},\textsuperscript{du},\textsuperscript{dv},\textsuperscript{dw},\textsuperscript{dx},\textsuperscript{dy},\textsuperscript{dz},\textsuperscript{ea},\textsuperscript{eb},\textsuperscript{ec},\textsuperscript{ed},\textsuperscript{ee},\textsuperscript{ef},\textsuperscript{eg},\textsuperscript{eh},\textsuperscript{ei},\textsuperscript{ej},\textsuperscript{ek},\textsuperscript{el},\textsuperscript{em},\textsuperscript{en},\textsuperscript{eo},\textsuperscript{ep},\textsuperscript{eq},\textsuperscript{er},\textsuperscript{es},\textsuperscript{et},\textsuperscript{eu},\textsuperscript{ev},\textsuperscript{ew},\textsuperscript{ex},\textsuperscript{ey},\textsuperscript{ez},\textsuperscript{fa},\textsuperscript{fb},\textsuperscript{fc},\textsuperscript{fd},\textsuperscript{fe},\textsuperscript{ff},\textsuperscript{fg},\textsuperscript{fh},\textsuperscript{fi},\textsuperscript{fj},\textsuperscript{fk},\textsuperscript{fl},\textsuperscript{fm},\textsuperscript{fn},\textsuperscript{fo},\textsuperscript{fp},\textsuperscript{fq},\textsuperscript{fr},\textsuperscript{fs},\textsuperscript{ft},\textsuperscript{fu},\textsuperscript{fv},\textsuperscript{fw},\textsuperscript{fx},\textsuperscript{fy},\textsuperscript{fz},\textsuperscript{ga},\textsuperscript{gb},\textsuperscript{gc},\textsuperscript{gd},\textsuperscript{ge},\textsuperscript{gf},\textsuperscript{gg},\textsuperscript{gh},\textsuperscript{gi},\textsuperscript{gj},\textsuperscript{gk},\textsuperscript{gl},\textsuperscript{gm},\textsuperscript{gn},\textsuperscript{go},\textsuperscript{gp},\textsuperscript{gq},\textsuperscript{gr},\textsuperscript{gs},\textsuperscript{gt},\textsuperscript{gu},\textsuperscript{gv},\textsuperscript{gw},\textsuperscript{gx},\textsuperscript{gy},\textsuperscript{gz},\textsuperscript{ha},\textsuperscript{hb},\textsuperscript{hc},\textsuperscript{hd},\textsuperscript{he},\textsuperscript{hf},\textsuperscript{hg},\textsuperscript{hh},\textsuperscript{hi},\textsuperscript{hj},\textsuperscript{hk},\textsuperscript{hl},\textsuperscript{hm},\textsuperscript{hn},\textsuperscript{ho},\textsuperscript{hp},\textsuperscript{hq},\textsuperscript{hr},\textsuperscript{hs},\textsuperscript{ht},\textsuperscript{hu},\textsuperscript{hv},\textsuperscript{hw},\textsuperscript{hx},\textsuperscript{hy},\textsuperscript{hz}

<table>
<thead>
<tr>
<th>Indication</th>
<th>1st Line</th>
<th>Penicillin allergic patients</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Class I</strong>&lt;br&gt;No signs of systemic toxicity; no uncontrolled co-morbidities; can tolerate oral antibiotics.</td>
<td>Flucloxacillin 500mg-1g \textsuperscript{a} QDS PO for \textsuperscript{x} \textsuperscript{b} days</td>
<td>Clarithromycin\textsuperscript{c} 500mg BD PO for \textsuperscript{x} \textsuperscript{b} days</td>
</tr>
<tr>
<td><strong>Class I\textsuperscript{d} or II patients referred to community services</strong>&lt;br&gt;Ceftriaxone 2g od IV\textsuperscript{e} for \textsuperscript{x} \textsuperscript{b} days</td>
<td>Reconstitute each 2-g vial with 40 mL of compatible infusion fluid (usually NaCl 0.9%). This can be infused directly from the vial if appropriate. The solution should be clear and light yellow to amber. Inspect visually for particulate matter or discoloration prior to administration and discard if present. Give by intermittent IV infusion over at least 30 minutes.\textsuperscript{ix}</td>
<td>Daptomycin 4mg/kg OD IV\textsuperscript{e} for \textsuperscript{x} \textsuperscript{b} days</td>
</tr>
<tr>
<td><strong>Class III &amp; IV</strong></td>
<td>Refer to hospital guidance</td>
<td>Refer to hospital guidance</td>
</tr>
</tbody>
</table>

a. Oral doses depend upon individual patient factors and the clinical assessment of the severity of the cellulitis; in general it is prudent to use a higher dose

b. Duration of treatment is dependent upon severity and the patient’s response to treatment. Antibiotics must be continued for 3 days after complete resolution of the symptoms. Patients must be fully reviewed by the prescriber after a maximum of 4 days IV therapy and 7 days of oral therapy (with daily review by staff administering IV medication)

c. Clindamycin 300mg-450mg QDS PO can be considered on a case by case basis for patients under 65 years with microbiology input. It is more effective than Clarithromycin but with a greater risk of C.diff

d. Class I patients with no response to oral therapy or deteriorating while on treatment

e. Refer to the Royal Marsden Hospital Online Manual of Clinical Nursing Procedures for best practice IV procedures including flushes, etc.
Table 2: IV – oral switch guidance

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<th></th>
<th>1st Line</th>
<th>Penicillin allergic patients</th>
</tr>
</thead>
<tbody>
<tr>
<td>IV</td>
<td>Ceftriaxone 2g od IV</td>
<td>Daptomycin 4mg/kg OD IV</td>
</tr>
</tbody>
</table>

Suggested criteria for prescribers to consider before stepping down therapy:
- 50% decrease in erythema; usually within 3-4 days of therapy for uncomplicated cellulitis
- Fall in Eron's class severity to Eron's class I
- Falling inflammatory markers (CRP should be checked where clinical improvement is not conclusive)
- Reduction in pain
- Systemic symptoms / Pyrexia settling

Oral

<table>
<thead>
<tr>
<th></th>
<th>Flucloxacillin 1g QDS PO for x* days</th>
<th>Clindamycin** 450mg QDS PO for x* days</th>
</tr>
</thead>
</table>

* Antibiotics must be continued for 3 days after complete resolution of symptoms
** Clindamycin is appropriate for patients under 65 years with no major risks for c.diff (see information below). Discuss with microbiology if unsure of suitability.

Medication cautions and information*

- **Flucloxacillin**
  - Avoid in patients with hepatic dysfunction; allergic to penicillin, other beta-lactam antibiotics or cephalosporins.
  - Caution in hepatic impairment and severe renal failure (CrCl<10mL/min).
  - Take on an empty stomach, 30 minutes before meals.
  - Interactions: Probenecid; combined oral contraceptives.
  - Side effects: GI disturbance; hypersensitivity

- **Clarithromycin**
  - Caution should be in patients with QT interval prolongation or myasthenia gravis.
  - Renal function <30mL/min/1.73m$^2$ use half the dose (250mg BD)
  - Side effects: Nausea, vomiting, abdominal discomfort, diarrhoea, dyspepsia, tooth and tongue discoloration, smell and taste disturbances, stomatitis, glossitis, and headache
  - Common interactions: Statins (suspend use during antibiotic therapy); Coumarins (monitor INR); Ergotamine, Dihydroergotamine, Cisapride, Pimozide, Astemizole, and Terfenadine use is contraindicated;

- **Ceftriaxone**
  - Do not give if there is known hypersensitivity to ceftriaxone, cephalosporins or previous hypersensitivity to penicillins or any other beta-lactam antibiotic, or excipients.
  - Development of severe, persistent diarrhoea may be suggestive of Clostridium difficile-associated diarrhoea and colitis (pseudomembranous colitis). Discontinue drug and treat. Do not use drugs that inhibit peristalsis.
  - Side effects: Dizziness, nausea, vomiting, abdominal pain, diarrhoea, urticaria, pruritus.
  - Do not use any calcium containing infusions, diluents, etc (e.g. Ringer's solution or Hartmann's solution) as life threatening precipitates can form.
  - Caution in patients taking amsacrine, vancomycin, fluconazole, aminoglycosides or contraceptives.

- **Daptomycin**
  - Do not give if there is known hypersensitivity to Daptomycin or any of the excipients.
  - Side effects: Fungal infections, headache, nausea, vomiting, diarrhoea, rash, increased pulse, metallic taste.
Patients with renal failure eGFR<30mL/min require dose adjustments. Refer to microbiology for support.

- Monitor creatinine kinase (CK) before starting therapy (baseline) and then weekly, review if levels increase.
- Review use in patients taking ciclosporin, fibrates, statins or NSAIDs.
- Caution in obese patients.
- Discontinue drug and treat if *Clostridium difficile*-associated diarrhoea is suspected.

**Clindamycin**

- Only to be used following microbiology discussion if the cellulitis is thought to be too serious for Clarithromycin to be effective but not yet warranting IV treatment.
- Caution in patients over 65 years as adverse events can be more severe.
- Do not give if there is known hypersensitivity to clindamycin, lincomycin or any of the excipients.
- Avoid in patients with active diarrhoea.
- Development of diarrhoea may be suggestive of *Clostridium difficile*-associated diarrhoea and colitis (pseudomembranous colitis). Discontinue drug and treat. Do not use drugs that inhibit peristalsis.
- Caution in patients taking muscle relaxants, neostigmine, pyridostigmine, oestrogen contraceptives, or imminent/recent use of oral typhoid vaccine.
- Caution in patients with a history of gastro-intestinal disease.
- Side effects: diarrhoea (discontinue treatment), abdominal discomfort, oesophagitis, oesophageal ulcers, taste disturbances, nausea, vomiting, jaundice and rashes.

* Always refer to the current [BNF](https://www.bnf.org.uk) and [SPC](https://www.medicines.org.uk) for more information.

**On-going management of cellulitis**

- Remove active compression therapy until cellulitis is completely resolved.
- Mark the area of cellulitis with a gentian ink marker at presentation to measure progress. Specific wound marker pens approved by infection control and tissue viability are provided within the community cellulitis kit and are for single patient presentation only. Photographs can be taken in addition to wound marking but a suitable method to record scale is required and patients must give written consent.
- The patient must rest and elevate the affected area.
- If MRSA is suspected request microbiology support.
- Rapidly deteriorating cellulitis with purple discoloration and/or severe pain may indicate necrotising fasciitis which is a potentially life threatening condition and requires immediate hospital admission for surgical debridement and IV antibiotic therapy.
- Seek specialist advice if the patient is breast feeding.
- Diagnose and treat predisposing causes, including tinea pedis, leg ulcer and lymphoedema.
- Consider antibiotic prophylaxis in patients who have more than one attack of cellulitis in a year: [www.prodigy.nhs.uk](http://www.prodigy.nhs.uk) and [www.crestni.org.uk](http://www.crestni.org.uk).

**Analgesia**

Patients requiring pain relief and/or treatment of fever should be prescribed an analgesic. Paracetamol is first line.

**NSAID use should be avoided.** They can mask the presentation of fasciitis and is associated with an increased risk of GI bleeding – this is of particular concern in people considered to be at high risk, which includes all patients over the age of 65 years (see BNF section 10.1.1).
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Training requirements:
Mandatory training
Anaphylaxis
Intravenous medication mixing and administration
Cannulation skills

This pathway sits under:
NHS NELFT Medicines policy
Royal Marsden Hospital Online Manual of Clinical Nursing Procedures

Bibliography
Guidelines on the Management of Cellulitis in Adults. CREST (Clinical Resource Efficiency
Community cellulitis clinical pathway summary (page 1)

### Diagnosis

<table>
<thead>
<tr>
<th>Class I</th>
<th>Class I or II</th>
<th>Class III or IV</th>
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</thead>
<tbody>
<tr>
<td>No signs of systemic toxicity; no uncontrolled co-morbidities and the condition can be managed at home with oral antibiotics:</td>
<td>Either systemically ill (temperature &gt; 37.9°C / vomiting) or are systemically well and have a co-morbidity e.g.:</td>
<td>Significant systemic upset (acute confusion / Heart rate &gt; 99/min / Respiratory rate &gt; 20/min / Systolic BP &lt; 100mmHg) or has unstable co-morbidities (uncontrolled diabetes; renal/liver failure) or has a limb threatening infection due to vascular compromise (varicose ulcer, peripheral vascular disease with critical ischaemia or arterial ulcer).</td>
</tr>
<tr>
<td>- Issue cellulitis information leaflet</td>
<td>- Peripheral vascular disease</td>
<td>- Class I or II Patients</td>
</tr>
<tr>
<td>- Prescribe Abx as per table 1</td>
<td>- Treated diabetes or BM &lt; 11</td>
<td>- Class III or IV Patients</td>
</tr>
<tr>
<td>- Postpone compression therapy</td>
<td>- Chronic venous insufficiency</td>
<td>- Systolic BP of &lt; 90mmHg or other features of severe sepsis or life threatening infection, such as necrotizing fasciitis</td>
</tr>
<tr>
<td>- Consider analgesia</td>
<td>- Morbid obesity (i.e. BMI &gt;40)</td>
<td></td>
</tr>
<tr>
<td>- Follow-up after 7 days as or required</td>
<td>- Liver cirrhosis</td>
<td></td>
</tr>
</tbody>
</table>

If the patient can be managed safely at home with I.V. antibiotics:
- Refer to community services (appendix D)
- Issue cellulitis information leaflet
- Postpone compression therapy
- Prescribe IV Abx as per table 1
- Consider analgesia
- Follow-up after 4 days or as required
- Refer to specialist services

### Medication

<table>
<thead>
<tr>
<th>Class I or II</th>
<th>Class III or IV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flucloxacillin 500mg-1g qds po</td>
<td>Ceftriaxone 2g od IV</td>
</tr>
<tr>
<td>Penicillin allergy: Clarithromycin 500mg BD PO</td>
<td>Daptomycin 4mg/kg IV OD</td>
</tr>
<tr>
<td>Penicillin allergy:</td>
<td></td>
</tr>
</tbody>
</table>

### Community care referral criteria

**Community care referral criteria (class I or II patients)**

**Day Hospital/Integrated community team (ICT)**
- Administration of IV antibiotics.
- Additional healthcare input required to support or supplement existing social care package
- Medication compliance / review of patient condition / response to therapy.

**Community Hospital/Nurse led unit**
- Administration of IV antibiotics
- Patient cannot be supported at home
- Closer monitoring by nursing staff is considered necessary
- Domestic environment is clinically unsuitable

### Review patient 48 hours after starting therapy

**Symptoms/signs improve:** Continue antibiotics as per recommendations

**Deterioration or no improvement after 48 hours of IV therapy:** Speak to microbiology and refer to secondary care as appropriate

---

1 Caution: Face/orbit involvement/signs of septicaemia refer to acute hospital.
2 Referral to specialist services should be considered at all stages in the patient’s journey e.g. Diabetes service if BGM is raised, Tissue viability nurses if a wound is present, etc.
3 Agree a maintenance plan with Multi-Disciplinary Team e.g. GP; Community Matron; District Nurses (ICT); Self-referral
4 No improvement does not mean that the redness is not resolving, this may take some time. It means that the clinical picture is worsening e.g. the redness is spreading beyond the original boundaries and / or the patient is becoming systemically ill

* Class I patients with no response to oral therapy or deteriorating while on treatment
** Dosages depend upon the clinical situation and individual patient factors. See BNF for further information.

**Note:** Clinical findings alone are usually adequate for diagnosing cellulitis, particularly in non-toxic immunocompetent patients.
Primary care clinician diagnoses cellulitis

Consider:
• Severity classification
• Contraindications to Outpatient Parenteral Antimicrobial Therapy (OPAT)
• Outline leading edge with indelible gentian marker
• Document affected area on body map (Appendix F)

Severity class III or IV or OPAT contraindications present?

Yes
Immediate referral to secondary care

No

• Unable to be supported at home?
• Closer monitoring considered necessary?
• Domestic environment unsuitable?

Yes

No

Severity Class I or II:
• IV treatment required?
• Poor compliance anticipated?
• Unable to self-monitor response?
• Additional healthcare input required to support or supplement existing social care package?

Yes

No

Refer to community services
SPA – 01268 242140: 7am – 7pm daily

Issue patient information leaflet (PIL; see Appendix A) after filling in the appropriate emergency contact details

Prescribe and supply appropriate antibiotics
Consider analgesia
(Cellulitis IV kits are located at each ICT base
Out of hours pharmacy holding stock can be found in Appendix C)

Satisfactory progress?

Yes

No

Review:
Need for maintenance / follow up?
Specialist service review e.g. diabetes service; tissue viability; compression therapy reassessment?

Yes

No

Arrange further input as required and re-assess

Discharge

Patient can be treated at home

Yes

No

Consider (depending on specific clinical situation):
• Medical review
• Discuss therapy with microbiology
• Acute hospital admission
Appendix A: Cellulitis PIL

Patient information sheet – Cellulitis
You have been diagnosed with a condition called Cellulitis; this is a bacterial infection of the skin which can occur very quickly. You may need to be treated with strong antibiotics, sometimes they need to be given straight into your blood.

Our community nursing team will support you to remain at home rather than be admitted to hospital whilst you have the antibiotics.

It is important that if there are any changes in your condition or you experience any of the following symptoms, you inform the nurses or your GP immediately.

- The redness and swelling spreads further
- You start to feel feverish or more unwell
- Pain increases
- You feel warmer and your temperature is rising
- You become confused
- Your blood glucose levels become unstable (Diabetics only)

You can support your treatment by:

- Stop wearing any compression tights/stockings whilst you have cellulitis.
- Finishing the course of any oral antibiotics, and taking them for at least 3 days after you feel better and the redness has gone.
- If your cellulitis is on your leg you must sit and elevate it above hip level. If it affects your arm, lift your lower arm above the level of your elbow.
- If this is uncomfortable lie on a sofa or bed as much as possible to help the drainage and circulation in the limb.
- Although rest and elevation are essential, you must also mobilise your joint and walk to the toilet.
- It is important that you take pain relief if you need it so that you are able to exercise your joint and mobilise.
- It is important to drink plenty of clear fluids eg. water, squash and tea.

Passive ankle exercises
Aftercare

Once the first stage has passed and the swelling is going down, it is important to care for the affected skin to prevent further problems:

- Wash the area daily in warm water using non-soap/non perfumed moisturiser e.g. Hydromol.
- Do not allow scabs or dry skin scales to form, these can allow bacteria to build up un-noticed and are a potential source of further infection.
- As the cellulitis gets better the surface layer of skin will loosen and ‘slough off’, it is important to maintain skin hygiene and moisturise the skin regularly e.g. morning and evening to increase elasticity and suppleness and prevent cracking – another source of infection.
- Avoid direct exposure of your legs to sunlight or trauma.
- If you normally wear compression hosiery (tight or stockings) you will need to ask your GP for a new assessment once the infection has gone.
- Compression hosiery should be replaced every three months as they can lose their effectiveness over time. You should be re-measured for the stockings by a trained professional each time they are replaced.
- The moisturisers/emollients can reduce the lifetime of the elastic in your hosiery, therefore allow time for it to soak in or apply in the evening after removal of hosiery.

GP name:………………………………… Phone no:………………………………

Day hospital:
Named nurse:………………………….. Phone no:……………………………..

Community nurse
Name: …………………………………… Phone no:……………………………..

Weekend/bank holiday contact no: ………………………………..
## Appendix B: Cellulitis care plan

### Cellulitis patient care plan

<table>
<thead>
<tr>
<th>Patient name:</th>
<th>DOB:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Address:</th>
<th>NHS number:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Date</th>
<th>Identified Need</th>
<th>Signature</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Date</th>
<th>Plan of Care/Patient Goal (Including stages)</th>
<th>Signature</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>As negotiated and with verbal consent of………………………………………..…… and consent obtained.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>The patient/nursing goals will be to resolve the Cellulitis infection with the aid of oral or IV antibiotics.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1. Ensure that all procedures are clearly explained to………………………………………..…… and consent obtained.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2. Monitor and record vital signs 8 hourly in the initial stages of treatment. A clinical decision may be made to reduce monitoring if patient is clinically stable and is able and aware of how to contact the team if necessary.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3. Check between the toes for fungal infection and treat as required. Record findings and actions.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>4. Record site and point of entry on reverse of cellulitis chart.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>5. Ensure all fields are completed at each visit.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>6. Ensure that antibiotics are administered as prescribed</td>
<td></td>
</tr>
</tbody>
</table>
7. If cannula in situ, check patency and observe for signs of extravasation / inflammation. Record status. Resite cannula as required.

8. Ensure that IV medication is administered as prescribed following trust policy.

9. Undertake blood samples and obtain result as per guidance. (FBC, U&E's, CK - for patients prescribed Daptomycin, LFTs, CRP, BGM, INR if appropriate). Discuss with referrer / prescriber if difficulty is anticipated in obtaining sample or results. Record conversation and decisions.

10. Document the date and time the sample is taken and results obtained.

12. Document if the patient is experiencing pain / discomfort from the infected area. Advise simple analgesia e.g. Paracetamol if not contra-indicated or refer to GP / Nurse Prescriber for prescription of oral analgesia. Pain chart to be in notes. Monitor pain control and record effect on pain chart.

13. Encourage elevation of affected limb (**do not** apply compression as it may push infection proximally).

14. Send swab for M, C & S if clear route for infection e.g. insect bite or exudates present.

15. Record date sent.

16. Record result.

17. Assess if the patient is weight bearing;

18. Refer to physiotherapy / OT for assessment for aids / equipment / mobility if required.

19. If cellulitis is not improving or deterioration is seen refer for medical review.

20. Ensure patient has Information leaflet and is aware of how to contact the team.

21. Complete audit form and return to local lead when care episode is complete.
**Appendix C: Community pharmacy Ceftriaxone stockists**

**Community pharmacy stockists**  
(2 x 1g Ceftriaxone and 2 x 2g Ceftriaxone kept in stock at all times)

<table>
<thead>
<tr>
<th>Pharmacy</th>
<th>Address</th>
<th>Telephone</th>
<th>Pharmacist</th>
<th>Opening hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>PharmChoice</td>
<td>9 Ingrave Road, Brentwood, CM15 8AP</td>
<td>01277 215809</td>
<td>Ada</td>
<td>Mon – Sat: 7am -10pm</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Sun: 9am-9pm</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vision pharmacy</td>
<td>11 Crammavill Street, Grays, RM16 2AP</td>
<td>01375 376007</td>
<td>Wassim</td>
<td>Mon – Sat: 7am -10pm</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Sun: 9am-7pm</td>
</tr>
<tr>
<td>Sainsburys pharmacy</td>
<td>Cricketer’s Way, Basildon, SS13 1SA</td>
<td>01268 280584</td>
<td>Nicki</td>
<td>Mon: 8am – 11pm</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Tues – Fri: 7am – 11pm</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Sat: 7am – 10pm</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Sun: 10am – 4pm</td>
</tr>
</tbody>
</table>

**Appendix D: Referral routes to community services**

<table>
<thead>
<tr>
<th>Service</th>
<th>Contact telephone</th>
<th>Fax number</th>
<th>Operating hours</th>
<th>Operating days</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single point of access (SPA)</td>
<td>01268 242140</td>
<td>01268 242148</td>
<td>7am – 7pm</td>
<td>Every day</td>
</tr>
</tbody>
</table>
## Appendix E: Cellulitis Chart

<table>
<thead>
<tr>
<th>Date</th>
<th>Visit No</th>
<th>Temperature</th>
<th>Blood pressure</th>
<th>Pulse</th>
<th>Respiratory rate</th>
<th>BGM</th>
<th>Vomiting?</th>
<th>Swab of area taken?</th>
<th>Pain (ie, on movement or at rest)</th>
<th>Hot to touch?</th>
<th>Colour of cellulitis</th>
<th>Spread outside of marked area or reduced in size?</th>
<th>Weight bearing?</th>
<th>Medication</th>
<th>Signature</th>
</tr>
</thead>
</table>

Name:  
NHS number:  
Date of Birth:  

---

Developed March 2013  
Review: March 2014  
SWECS adult primary care Cellulitis guidance
Appendix F: Cellulitis body map
Appendix G: ICT authorisation to administer medication

<table>
<thead>
<tr>
<th>No</th>
<th>Date started</th>
<th>Medication</th>
<th>Dosage</th>
<th>Frequency /Route</th>
<th>GP/Prescriber Signature</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td>Ceftriaxone powder for infusion</td>
<td>2g</td>
<td>Once daily for x days IV infusion</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td>Sodium chloride 0.9% infusion fluid</td>
<td>40mL for reconstituting ceftriaxone powder</td>
<td>Once daily for x days IV infusion</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
<td>Sodium chloride 0.9% flush</td>
<td>Before and after infusion as required</td>
<td>As required</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
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<tr>
<td>11</td>
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<tr>
<td>12</td>
<td></td>
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</tr>
</tbody>
</table>

Extra information:
Give by IV infusion over at least 30 minutes

Expiry: ___________ (Maximum of 4 days treatment to be given before GP review)

Note: Cross through this document upon replacement and file in the patient’s notes.
Appendix H: Community cellulitis IV kit contents list
IV Therapy box contents

- Adrenaline pack (check date) x 1
- Codan No DEPH 175 cm Giving Sets x 5
- Pink Cannula gauge 20 x 2
- Blue Cannula gauge 22 x 2
- Veca-C dressings x 6
- Sterile Gauze swabs x 6pkts
- Micropore tape x 1
- K-band 10cm x 4
- Green needles gauge 21 x 10
- 10ml (Leur-lock) syringes x 10
- 10 ml Sodium chloride 0.9% for injection x 10
- Needle free connectors x 3
- Isopropyl Alcohol Steret x 20
- Disposable Tourniquet x 1

If discharged from an acute hospital the following should be provided:

- An appropriate authorisation sheet stating prescribed medication, route, dose, duration of course, diluents and flushes. This must be signed by the prescriber and dated. Contact details must also be supplied.

References

1 BMJ 2012;345:e4955 doi: 10.1136/bmj.e4955 (Published 7 August 2012)


vi Basildon and Thurrock University Trust. Medicines information advice and liaison with antibiotic pharmacist and microbiology. November/December 2012

vii Whipps Cross Hospital. Skin and Soft Tissue infections. Antibiotic policy May 2012


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