Cellulitis

Resident with suspected cellulitis

1. Where the resident presents with fever and / or delirium, isolate the resident and place under *standard and transmission-based precautions* until GP review and confirmation of cellulitis as the cause
   - Apply appropriate personal protective equipment (PPE)
   - Ensure implementation of *enhanced environmental hygiene*
2. Check vital signs and review *Recognition of the deteriorating resident*
3. If not immediately life-threatening review *Checklist for contact* and contact GP*

STABLE VITALS → Does the resident meet *diagnostic criteria for cellulitis*? (see practice point 1)

- **NO** → Consider alternate cause for symptoms with GP and see *when to consider an alternate diagnosis* (practice point 2)
- **YES** → Are there systemic symptoms or are *escalation criteria* (see practice point 6) met?

UNSTABLE VITALS → Review Advance Care Plan or Statement of Choices and refer to *Management of residents with unstable vital signs*

Are there systemic symptoms or are *escalation criteria* (see practice point 6) met?

- **NO** →
1. **Mark margin** of cellulitis with skin marker
2. **Swab exudate** if ulcerating cellulitis with discharge and send for m/c/s
3. Other investigations as indicated
4. **Strict elevation** of cellulitic limb (caution if resident is cognitively impaired)
5. **Oral antibiotics** guided by allergies and prior sensitivities (see *Empiric antibiotics* - practice point 3)
6. If associated wound, review *Therapeutic guidelines* for further management advice
7. Institute *supportive care of residents with cellulitis* (see practice point 4)

→ Does the resident develop systemic symptoms or *escalation criteria* (see practice point 6) at any time or fail to respond to oral antibiotics within 72 hours?

- **YES** → Refer to *HHS RaSS* at GP discretion
- **NO** → Continue to monitor for development of *escalation criteria* (see practice point 6) **AND** continue oral antibiotics for 5 days in uncomplicated cellulitis (extend treatment if infection not improved in this time) **AND** treat risk factors for cellulitis (see *Prevention of recurrent cellulitis* - **practice point 5**)

- **YES** → Refer to *HHS RaSS* at GP discretion

***Where feasible, tele-conference or video-conference with GP is preferred**

Cellulitis practice points

1) Diagnostic criteria for cellulitis

Cellulitis is an acute infection of the skin that is identified by:

1. Diffuse spreading skin redness
2. Skin is almost always hot, shiny, bright red with the redness having a well demarcated edge that spreads if left untreated
3. Often painful to touch
4. In severe disease may be associated with:
   - Vesicles / bullae
   - Systemic symptoms including fever

Erysipelas is a specific type of cellulitis that has raised borders; it generally involves the face or lower limbs and is predominately caused by Streptococcus pyogenes (group A Streptococcus)

2) When to consider alternate diagnoses

1. Cellulitis of the lower limbs is usually unilateral: bilateral cellulitis is rare - if bilateral findings are present consider alternate diagnoses including:
   - Oedema (with or without blisters)
   - Deep venous thrombosis (DVT)
   - Chronic venous insufficiency or venous eczema
   - Liposclerosis
   - Vasculitis
2. Chronic venous insufficiency involves localised or diffuse involvement of the gaiter area; erythema with dry, scaly or weepy skin; brown discolouration of skin common; if erythema is present, it has a diffuse edge
3. Presence of unilateral vesicular eruptions and pain requires consideration of Herpes zoster ("shingles"); early recognition and institution of antiviral therapy (e.g. aciclovir) may reduce incidence of post-herpatic neuralgia and improve time to resolution. Erysipelas (due to Streptococcus pyogenes) may sometimes also be accompanied by vesicles, although it is differentiated from Herpes zoster by larger vesicles and bullae, often with haemorrhage, and lack of dermatomal distribution
4. Presence of pruritus or more than one resident with symptoms, should prompt consideration of presence of underlying scabies

3) Empiric antibiotics in cellulitis

Antibiotic selection for infection should be guided by:

- Allergies
- Prior sensitivities of organisms in this resident if empiric therapy or by current sensitivities if directed therapy
- Comorbidities, particularly hepatic or renal dysfunction or presence of morbid obesity
- Presence of sepsis versus local infection or *escalation criteria* (practice point 6) - seek specialist input
- Resident's ability to swallow or tolerate oral intake - note: for residents with a gastrostomy or jejunostomy tube, ensure that any medications administered via the tube are in a suitable formulation

If no penicillin allergy and no known MRSA and cellulitis is associated with:

- **An abscess or furuncle (boil) or wound, then use:**
  Dicloxacillin or Flucloxacillin 500mg orally every 6 hours for 5 days
- **Erysipelas or non-purulent erythema and no associated wound, then use:**
  Phenoxymethylpenicillin 500mg orally every 6 hours for 5 days

If history of delayed non-severe hypersensitivity to penicillins and no known MRSA, then use:

Cefalexin 500mg orally every 6 hours of 5 days

If history of immediate (non-severe or severe) or severe delayed hypersensitivity to penicillin or known MRSA colonisation / infection:

Where indication is known MRSA colonisation, check prior MRSA sensitivities to guide antimicrobial choice

Where known to be clindamycin-susceptible, use:

Clindamycin 450mg orally every 8 hours for 5 days;

Otherwise, use:

Trimethoprim+sulfamethoxazole 160 + 800mg orally every 12 hours for 5 days

Cellulitis practice points (cont'd)

4) Supportive care of residents with cellulitis

Supportive care of residents with cellulitis is critical to optimising resident outcomes and should include:

1. **Identification and treatment of direct complications of infection, particularly development of collections requiring drainage or sepsis (infection with end-organ dysfunction)**
   - Arrange medical review of residents by GP
   - Institute regular monitoring of vital signs (minimum of four times daily for 72 hours) - notify GP or at GP discretion, the *HHS RaSS* if vital signs suggest clinical deterioration (review *Recognition of the deteriorating resident*)
   - Assess for and manage *pain*
2. **Anticipate, prevent or treat destabilisation of chronic diseases** with examples of actions including:
   - Enact diabetes sick-day plan - refer to National Diabetes Services Scheme *Diabetes management in aged care handbook*
   - Monitor blood glucose levels closely in diabetics, chronic liver disease or in those with reduced oral intake
   - Attention to fluid balance in those with congestive cardiac failure or renal disease
   - Review medications and withhold where indicated e.g. consider withholding diuretics if dehydrated
3. **Prevent, identify and treat health-care related complications of acute illness**
   - Implement strategies to prevent, identify and treat delirium
   - Institute falls risk management strategies
   - Encourage oral fluids to minimise dehydration
   - Institute turns once every 2 hours and individualised skin care regimen where mobility is reduced
   - Ensure mobility is maintained (with physiotherapy support if indicated) where clinically appropriate

5) Management of risk factors for cellulitis and prevention of recurrent cellulitis

Management of risk factors for cellulitis

1. Examine interdigital toe spaces and treat fissuring, scaling or tinea pedis
2. Review resident for evidence of scabies, which can cause a secondary cellulitis
3. Treat limb oedema
4. If chronic venous insufficiency, consider use of compression stockings (review *Venous Leg Ulcer Flow Chart*)
5. Manage wounds or pressure injuries
6. Improve glycaemic control in diabetes
7. Treat nutritional deficiency, with particular emphasis on adequate protein intake in those with normal renal function and adequate micronutrient intake through a balanced diet

Maintain skin integrity:

1. **Optimise mobility and minimise falls risk**, particularly through removal of environmental trip or injury hazards, use of an appropriate mobility support aid, attention to bowel and / or bladder incontinence
2. Regular **pressure area care** for non-ambulant residents
3. Ensure **good hygiene and regular use of moisturiser**

IF the above factors are addressed and recurrent cellulitis continues to occur (3 to 4 episodes per year) then consider use of prophylactic antibiotics in consultation with an infectious diseases specialist

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Cellulitis practice points (cont'd)

6) Escalation criteria

History:

- Symptoms:
  - Uncontrolled pain
  - Vomiting
- Comorbidities that require stabilisation or presence of:
  - Peripheral vascular disease
  - Immunocompromise
  - Morbid obesity

Examination:

- Vital signs: unstable vital signs where goals of care are active (refer to *Recognition of the deteriorating resident*)
  AND / OR
  - High fevers with temperature > 38 degrees Celsius
  - Altered mental status (different to usual)
- Site
  - Involves face or orbits or neck
  - Associated with diabetic ulcer or deep wound
  - Perineal
  - Suspected associated bone or joint infection
- Rapidly spreading cellulitis. Note: it is not uncommon for cellulitis to extend beyond the initial margins in the first 24-48 hours despite effective antimicrobial treatment. Consider whether other escalation criteria are present. If not, and if the patient is systemically well, continue antibiotic treatment and close monitoring for 24 - 48 hours to see if improvement occurs
- Rigors (uncontrollable shivering)
- Lymphangitis (erythema tracking up limb)
- Evidence of an associated abscess that requires drainage

Cellulitis references

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Cellulitis version control

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