PRESEPTAL AND ORBITAL CELLULITIS IN CHILDREN - CLINICAL GUIDELINE V3.0
1. Aim/Purpose of this Guideline
1.1. This guideline applies to medical and nursing staff caring for a child with Preseptal and Orbital Cellulitis.

2. The Guidance
2.1. Preorbital and orbital cellulitis are both infections that may present with swelling and erythema of the eyelid and periorbital tissues. The terms preseptal and septal may be used instead of periorbital and orbital respectively. The key differential to these infections is whether there is infection posterior to the orbital septum, as this has serious consequences in terms of vision, serious CNS infection or cavernous sinus thrombosis.

2.2. Preseptal cellulitis is most common in the under 5-year age group. There is often a site of initial infection such as a minor injury to the skin or insect bite to the periorbital tissues. Infection can sometimes arise secondary to an URTI. There is tenderness, swelling, warmth and redness of tissues. Fever may be present. Swelling may be sufficient to obscure the eye, in such cases an ophthalmological examination is essential to exclude orbital cellulitis. The most common organisms are Strep pyogenes, Strep pneumoniae and Staph aureus. Haemophilus influenza may be a cause in unimmunised children and may be associated with concurrent meningitis. Atypical organisms including fungi may be responsible in immunocompromised and diabetics. Mixed aerobes and anaerobes are more common in the over 15 years.

2.3. Orbital cellulitis usually arises secondary to spread from the ethmoid sinus and bone, which progresses to subperiosteal abscess then orbital abscess or cellulitis. It can then extend more posteriorly to cause cavernous sinus thrombosis and meningitis. There may be a coexistent URTI or history of recent infection. Risk factors for intracranial infection include those > 7 years; subperiosteal abscess; headache and fever persisting despite IV antibiotics; immunocompromised and diabetics. Bilateral periorbital oedema may indicate cavernous sinus thrombosis. In cases where meningitis is suspected LP may be required but should only be undertaken after imaging as intracranial extension may be silent.
3. Monitoring compliance and effectiveness

<table>
<thead>
<tr>
<th>Element to be monitored</th>
<th>Compliance with guideline and flow chart process outlined in appendix 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lead</td>
<td>Paediatric Consultant Audit Lead</td>
</tr>
<tr>
<td>Tool</td>
<td>Individual case by case review of medical notes or specific audit tool</td>
</tr>
<tr>
<td>Frequency</td>
<td>As required or indicated</td>
</tr>
<tr>
<td>Reporting arrangements</td>
<td>Paediatric consultant Directorate audit and guidelines meeting</td>
</tr>
<tr>
<td>Acting on recommendations and Lead(s)</td>
<td>Paediatric consultant Directorate audit and guidelines meeting Required actions will be identified and completed in 3-6 months</td>
</tr>
<tr>
<td>Change in practice and lessons to be shared</td>
<td>Possible wording to use for this column. Required changes to practice will be identified and actioned within 3-6 months. A lead member of the team will be identified to take each change forward where appropriate. Lessons will be shared with all the relevant stakeholders</td>
</tr>
</tbody>
</table>

4. Equality and Diversity

4.1. This document complies with the Royal Cornwall Hospitals NHS Trust service Equality and Diversity statement which can be found in the ‘Equality, Diversity & Human Rights Policy’ or the Equality and Diversity website.

4.2. Equality Impact Assessment

The Initial Equality Impact Assessment Screening Form is at Appendix 2.
**Appendix 1. Governance Information**

<table>
<thead>
<tr>
<th>Document Title</th>
<th>PRESEPTAL AND ORBITAL CELLULITIS IN CHILDREN - CLINICAL GUIDELINE V3.0</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date Issued/Approved:</td>
<td>10&lt;sup&gt;th&lt;/sup&gt; Nov 2017</td>
</tr>
<tr>
<td>Date Valid From:</td>
<td>10&lt;sup&gt;th&lt;/sup&gt; Nov 2017</td>
</tr>
<tr>
<td>Date Valid To:</td>
<td>10&lt;sup&gt;th&lt;/sup&gt; Nov 2020</td>
</tr>
<tr>
<td>Directorate / Department responsible (author/owner):</td>
<td>Dr. Sian Harris - Paediatric Consultant</td>
</tr>
<tr>
<td>Contact details:</td>
<td>01872 253041</td>
</tr>
<tr>
<td>Brief summary of contents</td>
<td>Clear guidance on management of preseptal and orbital cellulitis in children.</td>
</tr>
<tr>
<td>Suggested Keywords:</td>
<td>Cellulitis Preseptal Orbital children</td>
</tr>
<tr>
<td>Target Audience</td>
<td>RCHT</td>
</tr>
<tr>
<td>Executive Director responsible for Policy:</td>
<td>Medical Director</td>
</tr>
<tr>
<td>Date revised:</td>
<td>10&lt;sup&gt;th&lt;/sup&gt; Nov 2017</td>
</tr>
<tr>
<td>This document replaces (exact title of previous version):</td>
<td>PRESEPTAL AND ORBITAL CELLULITIS IN CHILDREN - CLINICAL GUIDELINE V2.0</td>
</tr>
<tr>
<td>Approval route (names of committees)/consultation:</td>
<td>Paediatric consultants</td>
</tr>
<tr>
<td></td>
<td>Directorate audit and guidelines meeting</td>
</tr>
<tr>
<td></td>
<td>ENT consultant</td>
</tr>
<tr>
<td></td>
<td>Microbiology consultant</td>
</tr>
<tr>
<td>Divisional Manager confirming approval processes</td>
<td>David Smith</td>
</tr>
<tr>
<td>Name and Post Title of additional signatories</td>
<td>Not Required</td>
</tr>
<tr>
<td>Name and Signature of Divisional/Directorate Governance Lead confirming approval by specialty and divisional management meetings</td>
<td>{Original Copy Signed}</td>
</tr>
<tr>
<td>Name: Caroline Amukusana</td>
<td></td>
</tr>
<tr>
<td>Signature of Executive Director giving approval</td>
<td>{Original Copy Signed}</td>
</tr>
</tbody>
</table>
Publication Location (refer to Policy on Policies – Approvals and Ratification): Internet & Intranet ✓ Intranet Only

Document Library Folder/Sub Folder Clinical / Paediatrics

Links to key external standards none

Related Documents: none

Training Need Identified? no

Version Control Table

<table>
<thead>
<tr>
<th>Date</th>
<th>Version No</th>
<th>Summary of Changes</th>
<th>Changes Made by (Name and Job Title)</th>
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</thead>
<tbody>
<tr>
<td>July 13</td>
<td>V1.0</td>
<td>Initial Issue</td>
<td>Dr.S.Harris paediatric consultant</td>
</tr>
<tr>
<td>January 15</td>
<td>V2.0</td>
<td>Review of content. Reformat into template for documents library.</td>
<td>Dr.S.Harris paediatric consultant</td>
</tr>
<tr>
<td>Nov 2017</td>
<td>V3.0</td>
<td>No changes</td>
<td>Sian Harris, Paediatric Consultant</td>
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</tbody>
</table>

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

This document is to be retained for 10 years from the date of expiry.
This document is only valid on the day of printing

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### Appendix 2. Initial Equality Impact Assessment Form

*This assessment will need to be completed in stages to allow for adequate consultation with the relevant groups.*

<table>
<thead>
<tr>
<th>Name of the strategy / policy / proposal / service function to be assessed</th>
<th>Directorate and service area:</th>
<th>Is this a new or existing Policy?</th>
</tr>
</thead>
<tbody>
<tr>
<td>PRESEPTAL AND ORBITAL CELLULITIS IN CHILDREN - CLINICAL GUIDELINE V3.0</td>
<td>Child Health</td>
<td>Existing</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Name of individual completing assessment:</th>
<th>Telephone:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dr Sian Harris</td>
<td>01872252800</td>
</tr>
</tbody>
</table>

1. **Policy Aim***
   - **Who is the strategy / policy / proposal / service function aimed at?**
   - Clear guidance on the management of preseptal and orbital cellulitis

2. **Policy Objectives***
   - **Clear guidance on the management of preseptal and orbital cellulitis**

3. **Policy – intended Outcomes***
   - Evidenced based and standardised practice

4. **How will you measure the outcome?**
   - Audit and review

5. **Who is intended to benefit from the policy?**
   - Children and families

6a Who did you consult with?

b. Please identify the groups who have been consulted about this procedure.

<table>
<thead>
<tr>
<th>Workforce</th>
<th>Patients</th>
<th>Local groups</th>
<th>External organisations</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Please record specific names of groups**

- Clinical Guideline Group
- Child Health Directorate
7. The Impact

Please complete the following table. **If you are unsure/don’t know if there is a negative impact you need to repeat the consultation step.**

Are there concerns that the policy **could** have differential impact on:

<table>
<thead>
<tr>
<th>Equality Strands</th>
<th>Yes</th>
<th>No</th>
<th>Unsure</th>
<th>Rationale for Assessment / Existing Evidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Sex (male, female, trans-gender / gender reassignment)</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Race / Ethnic communities /groups</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Disability - Learning disability, physical impairment, sensory impairment, mental health conditions and some long term health conditions.</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Religion / other beliefs</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Marriage and Civil partnership</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pregnancy and maternity</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sexual Orientation, Bisexual, Gay, heterosexual, Lesbian</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**You will need to continue to a full Equality Impact Assessment if the following have been highlighted:**

- You have ticked "Yes" in any column above and
- No consultation or evidence of there being consultation - this **excludes** any policies which have been identified as not requiring consultation. **or**
- Major this relates to service redesign or development

What was the outcome of the consultation? Guideline agreed
8. Please indicate if a full equality analysis is recommended. Yes  No X

9. If you are not recommending a Full Impact assessment please explain why.

No areas indicated

Signature of policy developer / lead manager / director
Chris Warren

Date of completion and submission
10 Nov 17

Names and signatures of members carrying out the Screening Assessment
1. Sian Harris
2. Human Rights, Equality & Inclusion Lead

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

This EIA will not be uploaded to the Trust website without the signature of the Human Rights, Equality & Inclusion Lead.

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

Signed Chris Warren

Date 10/11/17
Appendix 3: Flow Chart

Child presenting with swelling of eyelid and/or periorbital tissues

Mild swelling

**NO** concerning features on examination
- no Proptosis
- no ophthalmoplegia or pain on eye movements
- no chemosis
- no headache
- normal visual acuity
- normal light reflexes
- systemically well
- no CNS signs or symptoms

- treat with oral antibiotics
  - Augmentin
    (if no fever consider allergic reaction or nephrotic syndrome)
- Discharge home with advice to return if worsening or any concerning features.

More marked swelling or unwell, Swelling of eyelid and periorbital tissues but **eye visible and no concerning features**
- no Proptosis
- no ophthalmoplegia or pain on eye movements
- no chemosis
- no headache
- normal visual acuity
- normal light reflexes
- no CNS signs or symptoms

- ADMIT
  - Take bloods including FBC and blood cultures
  - Start IV antibiotics
    - Metronidazole and Ceftiraxone
      (if <4 weeks Cefotaxime)
    - Clindamycin if penicillin allergic
  - If symptoms progress seek ophthalmological and ENT review.
  - Consider CT imaging

Swelling such that unable to examine eye properly or features suggest Orbital cellulitis or infection posterior to orbital septum
- Proptosis
- Ophthalmoplegia or pain with eye movements
- Diplopia
- Reduced visual acuity
- Abnormal light reflexes
- Conjunctival hyperaemia or Chemosis of globe
- Severe or persistent headache
- Toxic or systemically unwell
- CNS signs or symptoms

- ADMIT
  - Proceed to Orbital Cellulitis Table
**ORBITAL CELLULITIS**

**ADMIT ALL**

**ENT/ OPHTHALMOLOGY ASSESSMENT WITHIN 6 HOURS OF ADMISSION**

**SENIOR ENT OPINION TO PLAN MANAGEMENT**

**IV ANTIBIOTICS**

Vancomycin + Ceftriaxone (if <4weeks age use Cefotaxime) + Metronidazole (if penicillin allergic Vancomycin + ciprofloxacin + Metronidazole)

DECONGESTANT NOSE DROPS, ANALGESICS

If patient is MRSA carrier then discuss with Microbiology

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**BILAT. VISUAL AND NEUROLOGICAL SYMPTOMS & SIGNS**

? CAVERNOUS SINUS THROMBOSIS

EMERGENCY CT +/- MRI

Consider if on best antibiotic cover

LIAISE WITH TERTIARY NEUROLOGY/NEUROSURGERY

---

**REL. AFF. PUPIL DEFECT OR VISUAL ACUITY FAILING OR GONE AND/OR FIXED GLOBE**

EMERGENCY 100 MINS TO SAVE EYE

SURGICAL DRAINAGE (EXTERNAL SINUS APPROACH)

---

**VISUAL ACUITY & COLOUR VISION SATISFACTORY BUT SIGNIFICANT PROPTOSIS & CHEMOSIS OR OPHTHALMOPLEGIA**

CT SINUSES (AX & COR) IF POSSIBLE WITHIN 1-2 HOURS

DOESN’T IMPROVE OR LOCALISED ABSCESSE

---

**NO VISUAL LOSS NO SIGNIFICANT PROPTOSIS/GLOBE DISPLACEMENT**

CONSIDER CT WITHIN 24 HOURS

IMPROVES

Switch to ORAL ABS once sustained improvement

---

Clinical Guideline for the management of Preseptal and Orbital Cellulitis in Children.