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## Management of the Patient with a Facial Swelling Secondary to Dental / Dentoalveolar Infection

[Link to Algorithm](#)

### Aim

To provide a guideline for the management of children presenting to CHI emergency departments with a facial swelling secondary to dental infection.

### Definition of terms

Dental Infection Dental infections originate at the tooth or its supporting structures and can spread to the surrounding tissue. Dental infections most commonly occur when bacteria invade the pulp and spread to surrounding tissues. <sup>1</sup>

Dental abscess A dental abscess is the final product of an inflammatory process, a suppurative collection associated with the structures surrounding the teeth. It is a type of odontogenic infection (i.e., an infection that originates within a tooth). An abscess may remain localised (damaging only the adjacent tissues) or it may develop into a diffuse cellulitis, which can lead to the development of potentially life-threatening systemic complications. Most otherwise healthy patients have localised infections which can be managed on an outpatient basis. <sup>2</sup>

### Target Patient Population

This clinical guideline applies to children up until the age of 16

### Target Users

This guide is directed at health-care professionals engaged in the care of children under the age of 16 who present acutely to an emergency department, urgent care centres or who are currently admitted as inpatients. Most of the information is also applicable to presentations of dental infections in the community setting.

### Assessment

#### History

A thorough medical and dental history must be completed.

- Pain
- Orofacial swelling
- Halitosis
- Unpleasant taste in mouth
- Dental Trauma
- Fevers
- Systemically unwell

- Underlying conditions that may complicated dental care
  - E.g. complex cardiac condition, bleeding disorder, malignancy, sickle cell disease, epilepsy, diabetes, immunodeficiency, severe developmental delay, autism
- Access to care
  - E.g. homelessness, recent immigration, refugee/asylum seeker
- Complexity
  - Ability to communicate - issues of communication between the dental team and the patient/parent/guardian/carer while in the surgery. Includes language barriers.

### Dental History

- Previous dental review and advice given
- Previous dental trauma
- Dental or facial pain
- Exposure to sugary and high acidity foods and drinks (including processed fruit juice and cordial)
- Frequency, duration and who performs tooth brushing
- Frequency of bottles or sleeping with bottle teat or breast in mouth
- Chronic conditions which may impact saliva production or swallowing

### Examination

- Initial Exam
  - Look for evidence of systemic infection- fever, tachycardia, hypotension, tachypnoea
  - ? Airway compromise- neck/floor of mouth swelling, excessive drooling, dysphonia, dysphagia- think Ludwigs angina and urgent ENT review.

*More serious complaints such as fever, facial oedema, trismus, dysphagia, or dysphonia can be symptoms of a more serious dental infection that has extended into deep neck spaces.<sup>3</sup>*

- Dental Exam (5)
  - Thoroughly examine all the oral soft tissues by reflecting the cheeks and lips including lifting the upper lip high
  - in cases with upper lip swelling, look high in the buccal gingiva for swelling
    - Look for early signs of decay including white or brown spots/lines along the top of the tooth adjacent to the gum line which don't brush off- in a young child this indicated severe levels of disease
    - Check for loose or tender teeth
  - **Abscess may be indicated by:**
    - tender gingival swelling or erythema
    - erythema and cellulitis of facial skin overlying tooth, submandibular or periorbital
    - trismus
    - fever and systemic symptoms may be absent



### Differential Diagnosis <sup>[3,5]</sup>

- Dental Abscess
- Orofacial Cellulitis
- Osteomyelitis
- Deep neck space abscess
- Buccal space abscess
- Parotitis
- Cervical Lymphadenopathy
- Ludwigs angina
- Sinusitis
- Acute otitis media
- Infectious mononucleosis
- Salivary gland problems
- Malignancy

## Investigations

- Most children who are systemically well with mild- moderate orofacial pain and swelling do not require blood tests or imaging.
- If the child is systemically unwell and fits the criteria for sepsis, then they should be investigated and managed as per the local sepsis protocol.
- If there is concern over infection and inflammation spreading in to the deep orofacial and neck spaces, then urgent ENT consultation is advised and a decision over need for CT/MRI should be discussed.

## Management: See CHI Paediatric formulary for individual drug monographs

### Patients who are systemically well with local symptoms (including localised intraoral swelling) only, and no facial swelling:

- Analgesia: refer to CHI pain management guideline and decide on appropriate analgesia as per age appropriate pain score
- Referral to primary care dentist for definitive treatment: parents to contact community dentist (HSE or private practice)
  - If concerned about compliance or access to dental care, team can investigate and provide dentist details etc. to family or request GP to follow up in a few days-weeks to check that they have accessed suitable care
- Discharge from ED, with red flag advice

### Patients whose symptoms indicate mild and slowly progressing local spread of infection:

- Analgesia: refer to CHI pain management guideline and decide on appropriate analgesia as per age appropriate pain score
- Oral antibiotics 5 days<sup>6</sup> (refer to CHI formulary for dosing)
  - Amoxicillin (it is acknowledged that for most children and families, the phenoxymethylpenicillin regimen is challenging to adhere to, there amoxicillin is recommended as the drug of choice)
  - Penicillin allergy:
    - Metronidazole (1<sup>st</sup> choice for true, documented penicillin allergy or if recent failed penicillin course, ensuring dose has been optimised before switching to a non-penicillin antibiotic)
    - Clindamycin (2<sup>nd</sup> choice for penicillin allergy)
- Urgent dental referral (next working day): parents to contact own (HSE or private practice)
- Discharge from ED, with red flag advice

### Patients with severe infection (significant trismus, extra oral swelling, eye closing, floor of mouth swelling, difficulty breathing), systemic symptoms or rapidly progressing spread of infection:

- Admission
- Consider airway protection, septic screen
- IV fluids if required
- IV antibiotics: refer to CHI formulary for dosing
  - Amoxicillin and Metronidazole
  - Penicillin allergy: Clindamycin
- Analgesia
  - Refer to CHI pain management guideline and decide on appropriate analgesia as per age appropriate pain score
- Dental referral: Contact CHI dental service to discuss ongoing management needs

## Special Considerations

Clinical judgement should be used when assessing patients who are immunocompromised, have underlying medical conditions, or whose clinical features are deteriorating despite prescription of adequate antibiotics in the community.

Clinical judgement should also be exercised when considering discharge of children with complex social circumstances. It may be advisable to discuss first with the dental team.

## Companion Documents

- HSE- Antibiotics prescribing. *Acute Dento-Alveolar Infection*. 2021; Available from: <https://www.hse.ie/eng/services/list/2/gp/antibiotic-prescribing/conditions-and-treatments/dental/acute-dento-alveolar-infection/acute-dento-alveolar-infection.html>

## Links to useful websites

- HSE- Antibiotics prescribing. *Acute Dento-Alveolar Infection*. 2021; Available from: <https://www.hse.ie/eng/services/list/2/gp/antibiotic-prescribing/conditions-and-treatments/dental/acute-dento-alveolar-infection/acute-dento-alveolar-infection.html>.
- The Royal Children's Hospital, M., Australia. *Clinical Practice Guideline on Dental conditions - non traumatic*. Last updated October 2020; Available from: <https://www.rch.org.au/clinicalguide/>
- Scottish Dental Clinical Effectiveness Programme. *Management of Acute Dental Problems*. SDCEP 2013; Available from: <https://www.sdcep.org.uk>

## [Link to Reference List](#)