PERICORONITIS

CHI Formulary Indication Review

مجلس الضمان الصحي
Council of Health Insurance

INDICATION UPDATE

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ADDENDUM to the CHI Original Pericoronitis Clinical Guidance- Issued June 2020

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Related Documents

Related SOPs

- IDF-FR-P-02-01-IndicationsReview&IDFUpdates
- IDF-FR-P-05-01-UpdatedIndicationReview&IDFUpdates

Related WI:

- IDF-FR-WI-01-01SearchMethodologyGuideForNewIndications

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Abbreviations

aPDT	Antimicrobial Photodynamic Therapy
BD	Twice Daily
CHI	Council of Health Insurance
COVID-19	Coronavirus Disease 2019
EMA	European Medicines Agency
EMLA	Eutectic Mixture of Local Anesthetics
FDA	U.S. Food and Drug Administration
GI	Gastrointestinal
GMP	General Medical Practitioner
INR	International Normalized Ratio
NHS	National Health Service
NICE	National Institute for Health and Care Excellence
NSAID	Nonsteroidal Anti-Inflammatory Drug
OTC	Over the Counter
PA	Prior Authorization
PABA	Para-Aminobenzoic Acid
PE	Prescribing Edits
PPI	Proton Pump Inhibitor
QL	Quantity Limit
SAPG	Scottish Antimicrobial Prescribing Group
SDCEP	Scottish Dental Clinical Effectiveness Programme
SFDA	Saudi Food and Drug Authority
ST	Step Therapy
TDS	Three Times Daily

Executive Summary

Pericoronitis is a localized inflammation or infection of the soft tissues (gingiva or gum) that surround a partially erupted tooth, commonly occurring around partially erupted wisdom teeth. This condition is often characterized by pain, swelling, redness, and discomfort in the affected area due to bacterial infection and irritation caused by the incomplete eruption of the tooth. If left untreated, it can progress to life-threatening space infections, necessitating early identification, treatment, and prevention of the disease[1].

Pericoronitis can be categorized into two main types:

- **Acute pericoronitis:** sudden and severe form of pericoronitis, often characterized by intense pain, swelling, and acute inflammation of the affected gum tissue. It typically occurs when there is a sudden infection or inflammation around a partially erupted tooth.
- **Chronic pericoronitis:** recurrent or long-lasting form of the condition. It may involve milder and more persistent symptoms, such as occasional discomfort, swelling, or redness around the affected area. Chronic pericoronitis often occurs due to repeated episodes of inflammation and infection[2].

Peritonitis can be influenced by various risk factors that increase an individual's susceptibility of developing pericoronitis:

- **Partial tooth eruption:** pericoronitis typically occurs around partially erupted wisdom teeth or other molars. The presence of a flap of gum tissue (operculum) over the tooth can make it more susceptible to infection.
- **Poor oral hygiene:** inadequate oral hygiene, such as not brushing and flossing regularly, can lead to the accumulation of bacteria and debris in the affected area, increasing the risk of infection.
- **Trauma:** trauma to the gum tissue, such as injury from a dental instrument or accidental biting, can initiate or exacerbate pericoronitis.
- **Age:** wisdom teeth (third molars) typically begin to emerge in late adolescence or early adulthood, making this age group more susceptible to pericoronitis.
- **Dental crowding:** crowded teeth can impede the proper eruption of molars, increasing the risk of pericoronitis[1].

If left untreated or not managed effectively, pericoronitis can lead to various complications, including:

- **Abscess formation:** an untreated infection can result in the development of an abscess, a painful collection of pus in the affected area.

- **Cellulitis:** in severe cases, infection can spread to the surrounding tissues, leading to cellulitis, a potentially serious skin and soft tissue infection.
- **Ludwig's angina:** a rare but serious complication where infection spreads to the floor of the mouth and the neck, causing swelling, difficulty breathing, and the potential for airway obstruction.
- **Systemic infection:** while rare, untreated pericoronitis can lead to systemic infections when bacteria enter the bloodstream, potentially affecting other parts of the body[1].

The prevalence of pericoronitis is not well-documented, and findings from different studies vary. For example, in a study involving a military population, it was found that pericoronitis had a prevalence of 4.92% among individuals aged 20 to 25. Interestingly, approximately 95% of these cases were linked to the presence of mandibular third molars. Since pericoronitis is primarily associated with the eruption of third molars, it is most commonly observed in individuals aged 20 to 29, which is the age range when third molar eruption is common. It appears that there is no gender-based preference for the occurrence of pericoronitis[3].

In a study conducted in Al Ahsa, Saudi Arabia, it was found that 27.1% of patients had at least one impacted tooth. Out of 355 impacted teeth, mandibular third molars were the most impacted (62.3%), followed by maxillary third molars (30.7%), with maxillary canines being the least affected (1.7%). The study revealed that caries were associated with 23.1% of impacted third molars and 11.5% of the distal surfaces of adjacent second molars. Additionally, pericoronitis was linked to 61.5% of impacted mandibular third molars. Root resorption was observed in 3% of second molars adjacent to impacted third molars, and only one dentigerous cyst was associated with an impacted tooth. In conclusion, the prevalence of impacted teeth was high in the Al Ahsa Saudi population, with a predominance of mandibular third molars being impacted. Pericoronitis was notably associated with impacted mandibular third molars, likely due to the presence of erupted maxillary third molars causing trauma to the partially erupted mandibular third molars[4].

The burden of disease associated with pericoronitis includes various factors such as pain, discomfort, healthcare costs, and potential complications. The World Health Organization has identified oral diseases as having a particularly high cost of treatment. In industrialized nations, oral health care expenses typically account for a significant portion, ranging from 5% to 10% of the total health care budget. For instance, European Union countries allocated substantial funds, with expenditures of €54 billion in 2004 and €79 billion in 2009 for dental healthcare. Projections suggest that this amount has risen to approximately €93 billion in 2020. In the United States, dental expenditures were substantial as well, with a total of $20 billion spent on dental care for children aged 5–17 in 2009. Furthermore, the overall expenditure on

dental services reached $110.9 billion in 2012. Notably, out-of-pocket spending for dental services saw a 3.0% increase in 2012[5].

Drug therapy is an integral component for the management of pericoronitis. The goals of treatment of pericoronitis include relief of pain and discomfort, reduction of inflammation, clear infection and prevention of recurrence. The choice of treatment for pericoronitis depends on the severity of the condition and may include the following options:

- **Oral hygiene and warm saltwater rinse:** in mild cases, maintaining good oral hygiene and rinsing with warm saltwater may help reduce inflammation and infection.
- **Pain medication:** over the counter (OTC) pain relievers like ibuprofen or acetaminophen can be used to manage pain and reduce swelling.
- **Antibiotics:** in cases of infection, antibiotics may be prescribed to control the infection. Completing the full course of antibiotics is essential.
- **Drainage:** in some instances, a dentist may need to drain pus or fluid from the affected area to relieve pressure and discomfort. This should only be done by a healthcare professional.
- **Tooth extraction:** if pericoronitis is recurrent or severe, the impacted tooth (usually a wisdom tooth) may need to be surgically extracted to prevent future episodes.
- **Corticosteroid injections:** inflammation can be reduced with corticosteroid injections in more severe cases.
- **Surgical flap removal:** surgical removal of the flap of gum tissue covering the tooth can be considered in some cases[1].

CHI issued Pericoronitis clinical guidance after thorough review of renowned international and national clinical guidelines in June 2020. Updating clinical practice guidelines (CPGs) is a crucial process for maintaining the validity of recommendations.

This report functions as an addendum to the prior CHI Pericoronitis clinical guidance and seeks to offer guidance for the effective management of Pericoronitis. It provides an **update on the Pericoronitis Guidelines** for CHI Formulary with the ultimate objective of updating the IDF (CHI Drug Formulary) while addressing **the most updated best available clinical and economic evidence related to drug therapies.**

Main triggers for the update are summarized, being **the issuance of updated versions of previously reviewed guidelines** namely Scottish Dental Clinical

Effectiveness Programme Drug Prescribing for Dentistry Dental Clinical Guidance **(2021).**

Moreover, **new guidelines are added to the report** such as NHS/SDCEP Management of Acute Dental Problems During COVID-19 Pandemic **(2020),** SDCEP Analgesic and Antibiotic Contraindications and Cautions Supplement **(May 2021),** NHS pericoronitis antimicrobial guidelines **(2021)** and International Journal of Environmental Research and Public Health; A review of evidence-based recommendations for pericoronitis management and a systematic review of antibiotic prescribing for pericoronitis among dentists: Inappropriate pericoronitis treatment is a critical factor of antibiotic overuse in dentistry **(2021).**

After carefully examining clinical guidelines and reviewing the SFDA drug list, it is important to note that there has been **withdrawal** of the following drugs:

- Chlorhexidine
- Hydrogen peroxide

Moreover, there has been **no newly FDA/EMA approved drugs** for the treatment of Pericoronitis.

Additionally, there have been **updates** regarding previously mentioned drugs in terms of drug information and prescribing edits since June 2020.

Table 1. Prescribing Edits (PE) Modifications for Pericoronitis Medications

Drugs	PE Modifications
Acetylsalicylic acid	Modify AGE: not used in pediatric less than 18 years-old
Amoxicillin	Remove PA, QL. Add ST: this class is used only if local measures are not available or not effective; or if there are signs of spreading infection, systemic infection; or for an immunocompromised patient if there are signs of necrotizing disease. amoxicillin is used as an alternative to metronidazole/phenoxy-methyl penicillin or add on therapy to metronidazole in aggressive periodontitis.
Azithromycin	Remove PA, QL. Add ST: antibiotics should be used only if local measures are not available or not effective; or there are signs of spreading infection, systemic infection; or for an immunocompromised patient if there are signs of necrotizing disease and for patients with a history of a penicillin allergy.
Clarithromycin	Remove PA, QL.

	Add ST: antibiotics should be used only if local measures are not available or not effective; or there are signs of spreading infection, systemic infection; or for an immunocompromised patient if there are signs of necrotizing disease and for patients with a history of a penicillin allergy.
Clindamycin Hydrochloride	Remove PA, QL. Add ST: antibiotics should be used only if local measures are not available or not effective; or if there are signs of spreading infection, systemic infection; or for an immunocompromised patient if there are signs of necrotizing disease. Clindamycin is an alternative to penicillin in patients with a history of a penicillin allergy.
Diclofenac Epolamine	Remove QL.
Diclofenac Potassium	Remove QL.
Diclofenac Sodium	Remove QL.
Diclofenac sodium, Lidocaine hydrochloride	Remove QL.
Ibuprofen	Remove QL.
Metronidazole	Remove PA, QL.
Naproxen	Remove QL.
Paracetamol	Remove QL.
Phenoxymethylpenicillin	Remove PA, QL.

All recommendations are well supported by reference guidelines, Grade of Recommendation (GoR), Level of Evidence (LoE) and Strength of Agreement (SoA) in all tables reflecting specific drug classes' role in the Influenza therapeutic management.

Below is a table summarizing the major changes based on the different Pericoronitis guidelines used to issue this report:

Table 2. General Recommendations for the Management of Pericoronitis

Management of Pericoronitis		
General Recommendations	**Level of Evidence/Grade of Recommendation**	**Reference**
Prioritize non-antibiotic measures, such as local drainage, whenever possible to avoid unnecessary	Not graded[6] Not graded[7]	SDCEP[6] NHS[7]

antibiotic use. Emphasize the importance of local interventions to address pericoronitis, such as irrigation, debridement, and pus drainage.	Not graded[8]	International Journal of Environmental Research and Public Health[8]
The prescribing of antibiotics must be kept to a minimum and used only where there is a clear need, such as in the presence of swelling or signs of infection.	Not graded[9] Not graded[8]	SDCEP[9] Schmidt et al. (review article)[8]
The initial phase of treatment is aimed at eliminating bacterial overgrowth and managing pain. After resolving the acute phase, the focus shifts to preventing recurrence, which involves the prevention of microbial buildup.	Not graded[8]	Schmidt et al. (review article)[8]
Be cautious when considering surgical intervention during the acute phase and consider non-invasive methods like laser procedures. Utilize photodynamic therapy as a promising adjunctive antibacterial approach. **Prioritize pain management with NSAIDs as the analgesics of choice.** Consider topical analgesics for short-term pain relief during local interventions.	Not graded[8]	Schmidt et al. (review article)[8]
If antibiotics are warranted for dento-alveolar infections, consider **phenoxymethylpenicillin** as the first-line antibiotic for adult patients, with a regimen of 500 mg four times a day for five days. Ensure patients take phenoxymethylpenicillin on an empty stomach for optimal absorption.	Not graded[6]	SDCEP[6]
In cases where there are concerns about patient adherence, **amoxicillin**	Not graded[6]	SDCEP[6]

can be considered as an alternative for dento-alveolar infections treatment.		
Clarithromycin tablets are not suitable for children under 12 years; instead, prescribe clarithromycin oral suspension for dento-alveolar infections.	Not graded[6]	SDCEP[6]
Antibiotics serve as an adjunct to local treatment when dealing with the spread of infection or systemic involvement. For the treatment of pericoronitis, recommend a 3-day regimen of **metronidazole** for adults at 400 mg three times daily if drug treatment is required. Prescribe Metronidazole for children based on their age. Advise patients taking Metronidazole to avoid alcohol consumption. Do not prescribe Metronidazole for patients taking warfarin.	Not graded[6] Not graded[7] Not graded[9] Not graded[8]	SDCEP[6] NHS[7] SDCEP[9] Schmidt et al. (review article)[8]
Antibiotics serve as an adjunct to local treatment when dealing with the spread of infection or systemic involvement. For the treatment of pericoronitis, recommend **amoxicillin:** 500mg three times per day for 3 days.	Not graded[7] Not graded[8]	NHS[7] Schmidt et al. (review article)[8]
During COVID-19 pandemic, it was essential to prioritize patient and staff safety. Hence, The primary focus of dental triage in primary care should revolve around providing the three As: - Advice - Analgesia - Antimicrobials (if deemed appropriate)	Not graded[10]	NHS/SDCEP[10]

Recommend patients to have optimal analgesia and maintain good **oral hygiene** by using chlorhexidine mouthwash/gel or warm saltwater mouthwash. Gently brush area, ideally with small-headed toothbrush (benzydamine mouthwash or spray may make toothbrushing less painful). Prescribe antibiotics if you are concerned about swelling or if there are signs of systemic infection (fever, malaise).	Not graded[7] Not graded[10] Not graded[8]	NHS[7] NHS/SDCEP[10] Schmidt et al. (review article)[8]
During pandemic, if patient has spreading infection without airway compromise or if patient has continuing or recurrent symptoms, refer to designated urgent dental care center for possible extraction.	Not graded[10]	NHS/SDCEP[10]
Most odontogenic pain can be relieved effectively using paracetamol and/or ibuprofen to provide optimal analgesia. Optimal analgesia is characterized by using the minimal effective amount of pain relievers for the shortest required period to manage symptoms while staying within recommended dose limits, considering factors such as the patient's age, weight, and pertinent health conditions	Not graded[9]	SDCEP[9]
Analgesic agents that can be used include oral paracetamol, ibuprofen, and diclofenac. However, each one of them should be used carefully depending on each underlying condition the patient might be presenting with. Checking the patient's current use of analgesics before advising or prescribing analgesics is recommended. Paracetamol (acetaminophen)	Not graded[9]	SDCEP[9]

overdose is dangerous as it can cause hepatic damage that is sometimes not apparent for 4–6 days and can be fatal.		
On top of the orally available analgesics, patients can also benefit from topical analgesics that are intended for pain management during local interventions. Due to their short-term effects and high concentration, they are not suitable for continuous pain relief.	Not graded[8]	Schmidt et al. (review article)[8]
Evaluate factors such as tooth eruption, auto-transplantation, orthodontic treatment, and the patient's medical history when making decisions about tooth extraction. Consider tooth extraction only when other conservative measures have failed or for second or subsequent episodes of pericoronitis.	Not graded[8]	Schmidt et al. (review article)[8]

At the end of the report, a **key recommendation synthesis section** is added highlighting the latest updates in **Pericoronitis clinical and therapeutic management.**

Section 1.0 Summary of Reviewed Clinical Guidelines & Evidence

This section is divided into two parts; the first includes recommendations from **updated versions of guidelines** mentioned in the previous CHI pericoronitis report, and the second includes **newly added guidelines** that have helped generate this report.

1.1 Revised Guidelines

The following segment contains the updated versions of the guidelines mentioned in the June 2020 CHI Pericoronitis Report and the corresponding recommendations:

Table 3. Guidelines Requiring Revision

Guidelines Requiring Revision	
Old Versions	**Updated versions**
1.1 Scottish Dental Clinical Effectiveness Programme [**SDCEP 2013**] Management of Acute Dental Problems Guidance for Healthcare Professionals	N/A*
1.2 Scottish Dental Clinical Effectiveness Programme [**SDCEP**] Drug Prescribing for Dentistry Dental Clinical Guidance [Third Edition **2016**]	Scottish Dental Clinical Effectiveness Programme [**SDCEP**] Drug Prescribing for Dentistry Dental Clinical Guidance (**2021**)

**: not available (no new updates for those guidelines)*

The previous CHI report also included two review articles published in 2015 and 2016.

1.1.1 Scottish Dental Clinical Effectiveness Programme (SDCEP) Drug Prescribing for Dentistry Dental Clinical Guidance (2021)

The Scottish Dental Clinical Effectiveness Programme published in June 2021 an update that lists amendments to the 3rd edition of "Drug Prescribing for Dentistry" that was issued in January 2016. The main updated recommendations are listed below[6]:

Updated recommendations:

Management of acute dento-alveolar infections:

- In October 2020, the Scottish Antimicrobial Prescribing Group (SAPG) and its Dental sub-group issued a statement regarding the management of acute dento-alveolar infections.
- The SAPG statement emphasizes that antibiotic treatment should only be considered when immediate drainage cannot be achieved through local measures or when there is clear evidence of the infection spreading or involving the systemic system.
- In cases where antibiotic intervention becomes necessary, **phenoxymethylpenicillin** is now recommended as the preferred first-line antibiotic. This choice is based on its narrower spectrum of activity, which reduces the likelihood of promoting antimicrobial resistance.
- The recommended adult regimen for phenoxymethylpenicillin is 500 mg taken four times a day for a duration of five days. Each tablet should be ingested whole with water, at least 30 minutes before eating, as taking phenoxymethylpenicillin with meals can slightly diminish its absorption.
- In cases where there are concerns regarding a patient's adherence to this regimen, **amoxicillin** is a suitable alternative.
- **Clarithromycin** tablets are not licensed in children under 12 years. Clarithromycin oral suspension should be prescribed for this age group.

Necrotizing Ulcerative Gingivitis and Pericoronitis:

- The following replaces the drug regimen box for Metronidazole Tablets (adult dose change).
- If drug treatment is required, an appropriate 3-day regimen is: Metronidazole Tablets, 400 mg, 1 tablet three times daily.
- For children: Metronidazole Tablets, 200 mg, or Oral Suspension, 200 mg/5 ml
    - 1-2 years 50 mg three times daily
    - 3-6 years 100 mg twice daily
    - 7-9 years 100 mg three times daily
    - 10-17 years 200 mg three times daily
- Advise patient to avoid alcohol (metronidazole has a disulfiram-like reaction with alcohol).
- Do not prescribe metronidazole for patients taking warfarin.

1.2 Additional Guidelines

This part includes the added guidelines to the previous CHI pericoronitis report, along with their recommendations.

Table 4. List of Additional Guidelines

Additional Guidelines
NHS/SDCEP Management of Acute Dental Problems During COVID-19 Pandemic **(2020)**
SDCEP Analgesic and Antibiotic Contraindications and Cautions Supplement **(May 2021)**
NHS pericoronitis antimicrobial guidelines **(2021)**
A review of evidence-based recommendations for pericoronitis management and a systematic review of antibiotic prescribing for pericoronitis among dentists: inappropriate pericoronitis treatment is a critical factor of antibiotic overuse in dentistry **(2021)**

1.2.1 NHS/SDCEP Management of Acute Dental Problems During COVID-19 Pandemic (2020)

This guide was published by the National Health Service (NHS) of Greater Glascow and Clyde (GGC) jointly with SDCEP. It is based on, and aligned with, the SDCEP Emergency Dental Care and Management of Acute Dental Problems guidance publications. It is specifically adapted for NHS GGC and only for use during the COVID-19 pandemic. It describes modified management of commonly presenting oral conditions for use during the COVID-19 pandemic. It aims to encourage a consistent approach to the management of acute dental problems, while recognizing the challenges that the COVID-19 pandemic presents for provision of dental care. The main recommendations issued by NHS GGC/SDCEP are summarized below[10]:

- When assessing patients, it is essential to prioritize patient and staff safety, the patient's best interests, professional judgment, local urgent dental care center protocols, and the prioritization of the most critical care needs.
- The primary focus of dental triage in primary care should revolve around providing the three “A”s:
  - Advice
  - Analgesia
  - Antimicrobials (if deemed appropriate).

- Patients should be informed that treatment options are currently quite limited, and they should be encouraged to contact again in 48-72 hours if their symptoms have not improved.
- Dental conditions that patients are unable to self-manage and necessitate emergency care should be referred according to the flowchart below: Please note that the diagram provided offers a simple method for managing patient care through telephone triage and may not encompass all scenarios but addresses the most commonly presented symptoms.

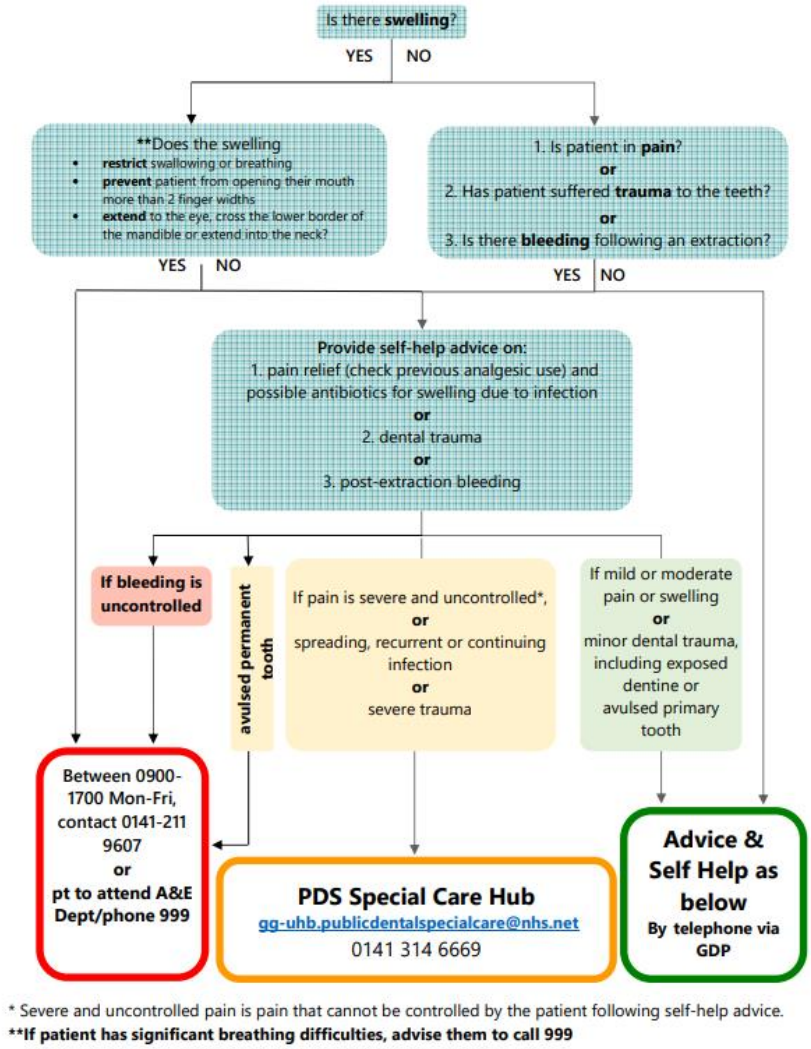

Figure 1. *Triage of Commonly Presenting Dental Problems*

Retrieved from NHS/SDCEP. Management of Acute Dental Problems Management of Acute Dental Problems Management of Acute Dental Problems Management of Acute Dental Problems During COVID.; 2020. www.sdcep.org.uk.

Table 5. Acute Peritonitis Management During COVID-19

Problem (symptoms)	Management
Acute pericoronitis • Pain around a partially erupted tooth • Swelling of the gingiva around tooth • Discomfort with swallowing • Limited mouth opening • Unpleasant taste or odor from affected area • Fever • Nausea • Fatigue	**Advice and self help** • Recommend optimal analgesia. • Recommend chlorhexidine mouthwash/gel or warm saltwater mouthwash. • Gently brush area, ideally with small-headed toothbrush (benzydamine mouthwash or spray may make toothbrushing less painful). • Prescribe antibiotics if you are concerned about swelling or if there are signs of systemic infection (fever, malaise). **Urgent care** • If patient has spreading infection without airway compromise or if patient has continuing or recurrent symptoms, refer to designated urgent dental care centre for possible extraction. **Emergency care** • If patient has spreading infection with or likely to have airway compromise and/or severe trismus contact 999 or A&E

1.2.2 SDCEP Analgesic and Antibiotic Contraindications and Cautions Supplement (May 2021)

The SDCEP has issued the recommendations below[9]:

- In dental practice, some medications come with significant contraindications and precautions for patients with specific medical conditions, including heart or circulatory disorders, renal or hepatic impairments, or those who face an elevated risk of gastrointestinal adverse reactions.
- When a medication is contraindicated for a particular medical condition, it is imperative to avoid prescribing that drug to patients with that condition.
- In cases where a medication has a caution specified for a particular medical condition, the medication may be prescribed to a patient with that condition if a safer alternative is not available. Nevertheless, it is essential to closely monitor the patient for adverse effects or any deterioration in their condition, and in some instances, a dose reduction might be advisable.

General principles

- Most odontogenic pain can be relieved effectively using paracetamol and/or ibuprofen to provide optimal analgesia. Optimal analgesia is characterized by using the minimal effective amount of pain relievers for the shortest required period to manage symptoms while staying within recommended dose limits, considering factors such as the patient's age, weight, and pertinent health conditions.
- The prescribing of antibiotics **must be kept to a minimum** and used only where there is a clear need. Treat dental abscesses in the first instance by using local measures to achieve drainage, with removal of the cause where possible.
- Antibiotics are not indicated in the absence of swelling or other signs of infection.
- Where analgesics and/or antibiotics are necessary, an up-to-date medical history should be obtained from the patient. This should include details of any medical conditions, current medications (including over-the-counter drugs, e.g., analgesics) and allergies that the patient might have.
- It is also important to establish the patient's self-management to date to check for possible overdose of analgesics.
- Be aware that prescribing for some patient groups, such as the elderly, patients who are immunocompromised or with hepatic or renal problems, patients who are pregnant and nursing mothers might differ.
- If the patient has a relevant underlying health condition, consider liaising with their general medical practitioner or specialist.
- Advise patients to contact the practice if their symptoms persist or worsen.

Contraindications and cautions

- It is essential to first check the patient's current use of analgesics before advising or prescribing analgesics. In particular, overdose with paracetamol is dangerous because it can cause hepatic damage that is sometimes not apparent for 4–6 days and can be fatal.
- Paracetamol is present in many over-the-counter preparations, and you should identify all paracetamol-containing medications that a patient has ingested.
- A patient who ingests a therapeutic excess of paracetamol (defined as more than the recommended daily dose [8 x 500 mg tablets for adults] and more

than or equal to 75 mg/kg in any 24-hour period) should be referred for assessment in an emergency department.

Drug regimens that may be recommended or prescribed by a dentist for an adult patient with dental pain are shown in the following table with the order of the drug regimens from left to right reflecting a stepwise approach to achieving optimal analgesia.

Table 6. Analgesic Contraindications and Cautions in Dental Practice

Adult Analgesic Dose **Condition**	**Paracetamol** (up to 4 x 1g daily)	**Ibuprofen** (up to 4 x 400 mg daily)	**Ibuprofen** (up to 4 x 600 mg daily)	**Ibuprofen** (up to 4 x 400 mg daily) + **Paracetamol** (up to 4 x 1 g daily)	**Ibuprofen** (up to 4 x 600 mg daily) + **Paracetamol** (up to 4 x 1 g daily)	**Diclofenac** (up to 3 x 50 mg daily) + **Paracetamol** (up to 4 x 1 g daily)
None	✓	✓	✓	✓	✓	✓
Existing non-dental NSAID use (excluding low dose aspirin)	✓	C[1]	C[1]	C[1]	C[1]	C[1]
Low dose aspirin	✓	C[2]	C[2]	C[2]	C[2]	X[2]
Elderly patients >65 yrs	✓	C[3]	X[3]	C[3]	X[3]	X[3]
Low body weight, alcohol dependence, chronic alcoholism, chronic malnutrition, or dehydration	C[4]	C[5]	C[5]	C[4,5]	C[4,5]	C[4,5]
Pregnancy	✓	X[6]	X[6]	X[6]	X[6]	X[6]
Breastfeeding	✓[7]	C[7]	C[7]	C[7]	C[7]	X
Allergic						
History of hypersensitivity/severe allergic reaction to an NSAID (including aspirin) e.g. asthma, rhinitis, angioedema or urticaria	✓	X	X	X	X	X
History of hypersensitivity to paracetamol	X	✓	✓	X	X	X

Allergic disorders (e.g. allergy to other medicines, foods, latex or pollens)	✓	C[8]	C[8]	C[8]	C[8]	C[8]
Respiratory						
Asthma	✓	C[9]	C[9]	C[9]	C[9]	C[9]
Cardiac/circulatory						
Severe heart failure	✓	X	X	X	X	X
Mild to moderate heart failure	✓	C[10]	X[10]	C[10]	X[10]	X
Ischaemic heart disease, cerebrovascular disease, or peripheral arterial disease	✓	C[11]	X[11]	C[11]	X[11]	X
Hypertension	✓	C[12]	X[12]	C[12]	X[12]	X[12]
Gastrointestinal						
Active gastrointestinal (GI) bleeding or GI ulcer *or* History of GI bleeding or ulcer related to previous NSAID use *or* History of two or more GI bleeds or ulcers	✓	X	X	X	X	X
History of one previous bleed or ulcer not associated with NSAID use	✓	C[13]	C[13]	C[13]	C[13]	C[13]
Inflammatory bowel disease	✓	C[14]	C[14]	C[14]	C[14]	C[14]
Hepatic						
Severe hepatic impairment (serum albumin <25 g/l or Child-Pugh score of 10 or more)	C[15]	X	X	X	X	X
Hepatic impairment (mild to moderate)	C[15]	C[16]	C[16]	C[15,16]	C[15,16]	C[15,16]
Renal						
Severe renal impairment (eGFR <30 mL/ minute/1.73 m^2)	C[17]	X	X	X	X	X

Renal impairment (mild to moderate)	✓	C[18]	C[18]	C[18]	C[18]	C[18]
Bleeding tendencies						
Anticoagulant use	✓	C[20]	C[20]	C[20]	C[20]	C[20]
Bleeding disorders	✓	C[21]	C[21]	C[21]	C[21]	C[21]

Green: can be prescribed/advised for these patients
Yellow: prescribe/advise with caution
Red: do not prescribe/advise for these patients

1. Patients who are already taking an NSAID, whether it's prescribed or not, regularly for a non-dental condition should refrain from taking an additional NSAID to manage dental pain.
2. When prescribing ibuprofen for patients who are taking low-dose aspirin, exercise caution. Adding an NSAID may diminish the cardioprotective benefits of low-dose aspirin and increase the risk of gastrointestinal bleeding. If necessary to prescribe an NSAID for patients on low-dose aspirin, consider ibuprofen up to a maximum of 1200 mg daily, in combination with a PPI, or consult the patient's general medical practitioner (GMP) for guidance. Diclofenac is not recommended in this guide for patients on low-dose aspirin due to contraindications for some patients.
3. Elderly patients face an elevated risk of cardiovascular, renal, and significant gastrointestinal adverse effects, including GI bleeding and perforation, which could be fatal. Therefore, prescribe ibuprofen with caution and do not exceed 1200 mg per day. Co-prescription of a PPI is advised, and you should coordinate with the patient's GMP if a PPI is not currently prescribed. Monitoring of blood pressure, renal function, and signs of heart failure may be necessary within 1–2 weeks of initiating or increasing the dose of an NSAID. Consult the patient's GMP for further discussion. Diclofenac is not recommended for elderly patients due to increased cardiovascular risk.
4. When prescribing paracetamol for individuals weighing less than 50 kg, use clinical judgment to adjust the dose. Exercise caution when prescribing paracetamol in cases of alcohol dependence, chronic alcoholism, chronic malnutrition, or dehydration.
5. NSAIDs should be avoided in individuals with dehydration due to the risk of acute kidney injury. For patients with chronic alcoholism and alcohol dependence, the GI risk is increased with NSAIDs. Avoid NSAIDs if possible or prescribe with a PPI.
6. Paracetamol is the preferred analgesic during pregnancy, as NSAIDs should generally be avoided unless the benefits clearly outweigh the risks. If

necessary, a GMP may prescribe an NSAID at the lowest effective dose for the shortest time possible. NSAIDs should not be used after the 30th week of pregnancy without specialist advice and regular fetal monitoring.

7. Paracetamol is the recommended analgesic for breastfeeding women. Seek expert advice if the infant is preterm or has low birth weight. Use NSAIDs with caution. If an NSAID is necessary, ibuprofen is preferred at the lowest effective dose for the shortest time.
8. Prescribe NSAIDs cautiously for individuals with allergic disorders, as they may have an increased risk of NSAID-induced allergies. Advise patients to watch for allergic symptoms and discontinue NSAID use if such symptoms occur.
9. Exercise caution when prescribing NSAIDs for individuals with asthma, as all NSAIDs have the potential to exacerbate asthma, either acutely or as a gradual worsening of symptoms. Warn patients about the potential development of NSAID-induced asthma, especially later in life.
10. Prescribe ibuprofen with caution for individuals with cardiac impairment or mild to moderate heart failure, with monitoring for renal function. Do not prescribe NSAIDs in cases of severe heart failure. The recommended dose for ibuprofen is up to 1200 mg per day. For higher doses, consult with the patient's GMP.
11. Prescribe ibuprofen with caution for individuals with cerebrovascular disease, ischemic heart disease, peripheral arterial disease, or risk factors for cardiovascular events. The recommended dose is up to 1200 mg per day, and for higher doses, consult with the patient's GMP.
12. Prescribe NSAIDs with caution for individuals with hypertension, as NSAIDs may impair renal function. The recommended dose for ibuprofen is up to 1200 mg per day, and for higher doses, consult with the patient's GMP. Blood pressure monitoring may be required after starting long-term NSAID treatment or increasing the dose.
13. Exercise caution when prescribing NSAIDs for individuals with a history of GI ulceration or bleeding, or those at high risk of GI adverse effects. Factors increasing the risk of NSAID-induced GI adverse events include age over 65, high NSAID dose, history of GI ulcers, bleeding, or perforation, concomitant use of medications that increase the likelihood of upper GI adverse events, serious comorbidities (e.g., cardiovascular disease, hepatic or renal impairment, diabetes, or hypertension), heavy smoking, excessive alcohol consumption, previous adverse reactions to NSAIDs, and prolonged NSAID use. Co-prescription of a PPI is advised; consult the patient's GMP for further discussion.

14. Prescribe NSAIDs with caution for individuals with inflammatory bowel disease, as NSAIDs may increase the risk of developing or exacerbating ulcerative colitis or Crohn's disease.
15. Paracetamol is generally considered a suitable analgesic for most individuals with liver disease. However, the manufacturer recommends caution, and dose reduction may be necessary for certain patients, such as those with moderate or severe acute hepatitis.
16. Exercise caution when prescribing NSAIDs for individuals with mild to moderate hepatic impairment and avoid prescribing them in cases of severe hepatic impairment. Dose reductions and liver function monitoring may be required.
17. Prescribe paracetamol with caution for individuals with severe renal impairment, and dose reduction may be necessary. Consult with the patient's GMP for further discussion.
18. Exercise caution when prescribing NSAIDs for individuals with mild to moderate renal impairment and avoid prescribing them in cases of severe renal impairment. Sodium and water retention may occur, potentially leading to renal function deterioration and renal failure. For patients with impaired renal function who cannot avoid NSAID use, monitor renal function 1–2 weeks after starting or increasing the dose of an NSAID and consult with the patient's GMP.
19. For individuals taking anticoagulants, paracetamol is considered safer than aspirin or NSAIDs since it does not affect platelets or cause gastric bleeding. Patients should have their usual INR checks scheduled and inform their clinician if they have been regularly using paracetamol.
20. Whenever possible, avoid simultaneous use of NSAIDs with anticoagulants (e.g., warfarin, dabigatran). All NSAIDs can cause GI irritation and reduce platelet aggregation, potentially exacerbating bleeding events. If concurrent use is necessary, be aware of the potential risks of bleeding and consider providing gastroprotection. Consult the patient's GMP if a PPI is required but not currently prescribed.
21. Prescribe NSAIDs with caution for patients with bleeding disorders (e.g., hemophilia, von Willebrand disease, and clotting factor deficiencies). Consult with the patient's GMP or hematologist for guidance.

Amoxicillin/Phenoxymethylpenicillin

Contraindications: avoid prescribing amoxicillin or phenoxymethylpenicillin to individuals with a history of anaphylaxis, urticaria, or an immediate rash following penicillin administration, as these individuals are at risk of immediate hypersensitivity reactions, including anaphylaxis and rashes.

Cautions: exercise caution when prescribing amoxicillin and phenoxymethylpenicillin to individuals who

- have a known hypersensitivity to cephalosporins, as there is some evidence of partial cross-reactivity;
- have renal impairment, as dose adjustment may be necessary in cases of severe renal impairment;
- are taking warfarin, as amoxicillin or phenoxymethylpenicillin may potentially influence the anticoagulant effect of warfarin. If either antibiotic is prescribed to patients on warfarin, the INR should be monitored 4-7 days after starting the antibiotic course.

Metronidazole

Contraindications: do not prescribe metronidazole to individuals who

- have a known hypersensitivity to metronidazole or nitroimidazoles;
- are taking warfarin.

Cautions: metronidazole can lead to a disulfiram-like reaction when combined with alcohol. Therefore, patients should be advised to abstain from alcohol while taking metronidazole.

1.2.3 NHS Pericoronitis Antimicrobial Guidelines (2021)

The NHS of Lanarkshire published in March 2021 a short guidance for the management of pericoronitis. The main recommendations are summarized below[7]:

- Refer to the dentist for irrigation and debridement.
- If persistent swelling or systemic symptoms use Metronidazole.
- Use antiseptic mouthwash if pain and trismus limit oral hygiene.

Drug details

- **Amoxicillin:** 500mg TDS for 3 days

Penicillin allergy:

- **Metronidazole:** 400mg TDS for 3 days

Use the following until oral hygiene possible:

- **Chlorhexidine:** Rinse mouth for 1 minute BD with 5 ml diluted with 5-10 ml water

  or

- **Hydrogen Peroxide:** Rinse mouth for 2 mins TDS with 15ml diluted in ½ glass warm water.

1.2.4 A Review of Evidence-Based Recommendations for Pericoronitis Management and A Systematic Review of Antibiotic Prescribing for Pericoronitis Among Dentists: Inappropriate Pericoronitis Treatment is a Critical Factor of Antibiotic Overuse in Dentistry (2021)

This work published by Schmidt et al. in the International Journal of Environmental Research and Public Health provides a narrative review covering evidence-based recommendations for pericoronitis management and a systematic review of antibiotic prescribing for pericoronitis from January 2000 to May 2021[8]. Findings are summarized below:

Treatment

- The primary underlying cause of pericoronitis is a structural predisposition that allows the accumulation of bacteria, resulting in inflammation of the surrounding soft tissues.
- The initial phase of treatment is aimed at eliminating bacterial overgrowth and managing pain.
- After resolving the acute phase, the focus shifts to preventing recurrence, which involves the prevention of microbial buildup.

Managing Infection

- In most instances, pericoronitis can be effectively addressed through local interventions, which include the removal of debris and irrigation in areas where fluid stagnation occurs.
- Antibiotics are typically reserved for severe cases or when systemic symptoms are present.

A. Local Intervention

- Irrigate the pericoronal space with a sterile solution (such as saline, antiseptics for oral mucosa, e.g., hydrogen peroxide, or chlorhexidine).

- Gently remove plaque and debris (debridement) from the affected pocket using periodontal instruments and swabs.
- Combining irrigation and debridement may yield better outcomes.
- Drain any accumulated pus.
- Soft tissue or occlusal adjustments should be made to prevent traumatic occlusion. In some cases, extracting an antagonist tooth may be considered.
- Patients should receive instructions on oral hygiene practices, including gentle and meticulous mechanical cleaning of the affected area and mouth rinsing with antiseptics (e.g., 0.12–0.2% chlorhexidine for one minute, twice daily).
- Surgical intervention during the acute phase remains a subject of debate. Advocates argue that it leads to a rapid resolution, while opponents view it as an unnecessary risk for spreading the infection. No consensus has been reached on this matter.
- If surgery becomes necessary, such as for abscess drainage, cautery or laser procedures have shown to be more advantageous than scalpel methods.
- Although ozone therapy can complement local treatment, there is no substantial evidence supporting its effectiveness.
- Photodynamic therapy presents a promising adjunctive antibacterial approach and is discussed separately. The use of caustic agents like chromic acid, phenol liquefactum, trichloroacetic acid, or Howe's ammoniacal solution for chemical cauterization of pain nerve endings is discouraged due to their toxic nature when applied in the oral cavity.
- Local anesthesia can be employed during local interventions, but its effectiveness may be reduced in the acidic environment of infected tissues.
- Alternatively, topical analgesics can offer short-term pain relief, providing a window to perform local interventions.

B. Antibiotics

- Antibiotics serve as an adjunct to local treatment when dealing with the spread of infection or systemic involvement.

<u>Antibiotic Prescription for Pericoronitis</u>

Metronidazole:

- For Adults: Orally, 400 mg (three times daily for up to five days) or intravenously, 500 mg (every 8 h, given over 20 min)

- For Children (over 10 years): Orally, 200–250 mg or intravenously, 7.5 mg/kg (every 8 h, max. 500 mg per dose)

Amoxicillin:

- For Adults: Orally, 500 mg (every 8 h for up to five days; 1 g every 8 h in severe infection) or intravenously, 500 mg every 8 h; 1 g every 6 h in severe infection
- For Children (over 12 years): Orally, 500 mg every 8 h for up to five days; 1 g every 8 h in severe infection or

- Antibiotics are a crucial treatment option when pericoronitis involves infection spread or systemic complications.
- However, their usage should align with principles for appropriate antibiotic therapy, necessitating microbial culture to guide the selection of effective antibiotics, such as metronidazole and amoxicillin.
- While various antimicrobials have been explored for odontogenic infections, no clear evidence supports one over another.
- Proper antibiotic dosing, considering the minimum inhibitory concentration and the required duration, is crucial, with deviations justified only for valid reasons.
- In severe cases, increased dosage or frequency, or a combination of amoxicillin and metronidazole, may be considered.
- Patients allergic to penicillin may use erythromycin as an alternative. Those taking metronidazole should avoid alcohol, and warfarin's anticoagulant effect may be enhanced by metronidazole.
- Patients with severe trismus, swollen floor of the mouth, or breathing difficulties should be referred to a hospital.

C. Photodynamic Therapy

- Antimicrobial photodynamic therapy (aPDT) offers a non-invasive, cytotoxic treatment option with a low likelihood of inducing drug resistance.
- Essentially, this method involves applying a photosensitizing agent to the target tissue and activating it with laser light of a specific wavelength in the presence of oxygen.
- Upon irradiation, the photosensitizer molecules become excited and transfer energy to oxygen molecules, leading to the formation of oxygen free radicals. These radicals are highly cytotoxic and aid in eliminating bacteria.
- Photodynamic therapy is a technique also applied in dentistry, including the treatment of pericoronitis.

- Although the current number of studies focused on aPDT and pericoronitis is insufficient to draw firm conclusions, this method appears to be a promising adjunctive antibacterial therapy for pericoronitis.

Pain Management

- Pain, a symptom of inflammation, is the most common reason leading a patient suffering from pericoronitis to oral healthcare providers.
- It significantly reduces the quality of life and limits the patient in his/her daily routine, social life, eating a regular diet, chewing food, and talking.
- Thus, pain relief should be an integral part of pericoronitis treatment.
- The analgesics of choice should be nonsteroidal anti-inflammatory drugs (NSAIDs).
- Whether by administering local anesthesia or topical anesthesia, pain management is also an essential part of local treatment as it increases patient compliance during the procedure.

A. Oral Analgesics

- Oral analgesics are recommended for patients experiencing pain that significantly impairs their quality of life and daily activities. The necessity for analgesics is individually determined based on the patient's subjective assessment of their pain.

<u>Oral Analgesic Prescription for Dentistry</u>

Ibuprofen:

- Adults: 400 mg (the dose can be used four times a day for up to five days). In adults, the dose can be increased to a maximum of 2.4 g daily. Administration is preferably done after meals.
- Children:
    - 6–11 months: 50 mg
    - 1–3 years: 100 mg
    - 4–6 years: 150 mg
    - 7–9 years: 200 mg
    - 10–11 years: 300 mg
    - 12–17 years: 300–400 mg
    - The doses for children and adolescents can be administered four times a day for up to five days.

Aspirin:

- Adults: 600 mg
- Children:
    - < 16 years: Not recommended for children due to Reye's syndrome
    - > 16 years: As for adults
- The doses for both adults and children can be used four times a day for up to five days.
- Aspirin is a blood thinner and should not be prescribed before or after surgery.
- Administration is preferably done after food.

Diclofenac:

- Adults: 50 mg, can be used three times a day for up to five days. The maximal daily dose is 150 mg.
- Children: Not recommended for dental use in children

B. Topical Analgesics

- Topical analgesics are intended for pain management during local interventions. Due to their short-term effects and high concentration, they are not suitable for continuous pain relief.
- The use of topical analgesics before a meal is a subject of debate, as their potent analgesic effect can inadvertently lead to self-inflicted damage.

Table 7. List of Topical Analgesics, Their Availability, Onset Time, and Duration

Topical Analgesics	Availability	Concentration	Onset Time (min)	Duration (min)
Benzocaine*	Gel, spray, ointment, solution	1-20%	0.5	5-15
Tetracaine Hydrochloride**	Spray, ointment, solution	0.2–2.0%	2	20–60
Lidocaine	Gel, spray, ointment, solution	2-5%	1-2	15
Cetacaine	Solution	14% benzocaine, 2% butamben, 2%	0.5	30–60

		tetracaine hydrochloric acid		
EMLA* **	Cream	1:1 mixture of 2.5% prilocaine and 2.5% lidocaine	2	10
Oraqix	Gel	2.5% lidocaine and 2.5% prilocaine	0.5	20
*Benzocaine carries risks, including cross allergies to PABA and ester-type anesthetics and the potential for methemoglobinemia. **Tetracaine hydrochloride is rapidly absorbed into the mucosa, with a dose limitation of 20 mg per session in healthy adults. ***EMLA stands for eutectic mixture of local anesthetics.				

- Administer the minimal necessary amounts of topical analgesics to avoid any risk of intoxication, ensuring that the application is specifically directed to the affected area. It is important that the targeted area is dry to enhance absorption, and any surplus analgesics should be carefully wiped away. When using spray analgesics, it is advisable to first apply them to a swab, which can then be used to deliver the medication to the affected tissue, thereby minimizing the dosage.

Prevention

- Preventing disease recurrence is a fundamental aspect of effective treatment and a means to reduce antibiotic use.
- Pericoronitis is primarily caused by the buildup of microbes due to local morphological conditions. Hence, successful pericoronitis prevention centers on averting bacterial stagnation.
- Although the treatment's desired outcome is clear, the path to achieving it can present a therapeutic dilemma.

Tooth Extraction

- The primary question often revolves around the necessity for tooth extraction. While guidelines and recommendations can offer valuable insights, the complexity of each case and the need for an individualized approach always necessitate the expertise of a dental specialist. In the context of lower third molar extraction due to pericoronitis, clinical practice guidelines from the NHS issued by NICE provide the following recommendations:
- Emphasis is placed on plaque formation and pericoronitis. Although plaque formation is a risk factor, it does not, by itself, warrant surgery. The extent to which the severity or recurrence of pericoronitis should influence the decision

for surgical removal of a third molar remains uncertain. The evidence suggests that a first episode of pericoronitis, unless exceptionally severe, should not be considered a surgical indication. Second or subsequent episodes should be considered an appropriate indication for surgery.

- The decision should also take into account whether further tooth eruption can rectify the current unfavorable morphological conditions and whether there is a chance to establish a functional tooth position. Additional factors, including autotransplantation, orthodontic treatment, the proximity of the mandibular canal, and the patient's medical history, should also be evaluated. If the decision is made to extract the tooth as a definitive solution to pericoronitis, it should not be unduly postponed. Teeth with incomplete development, marked for removal, should be extracted promptly to minimize invasiveness, bone loss, and potential complications.

Pericoronal Tissue Surgery

- An alternative to tooth extraction is pericoronal tissue surgery, which encompasses the removal of soft tissue covering the tooth, such as operculectomy, and potentially gingivoplasty around the tooth to eliminate deep pockets.
- This can be achieved through traditional techniques using a scalpel, although more advanced methods employing a diode laser or cautery have demonstrated significant advantages.
- Laser or cautery gingivectomy procedures are safe and entail the removal of excess soft tissue to expose the crown of partially erupted teeth, facilitating improved hygiene maintenance. The use of lasers and cautery in pericoronal tissue management is associated with less bleeding, suturing, postoperative discomfort, and complications compared to scalpel-based procedures. The objective of this treatment is to remove all excessive tissues that foster bacterial retention and hinder its elimination during routine dental hygiene.
- An evaluation should follow the treatment to assess the outcomes achieved. If the desired result is not attained, additional soft tissue surgery should be considered. In comparison to extraction, pericoronal tissue surgery results in less pain and fewer complications.
- In some cases, the adjunct use of orthodontics can be employed to attain the proper tooth position and alleviate the issue.

Oral Hygiene

- Diligent oral hygiene constitutes a fundamental component of the preventive measures for conditions associated with plaque buildup, such as pericoronitis. Therefore, it is imperative to provide oral hygiene instructions to all patients.

Section 2.0 Drug Therapy in Pericoronitis

This section comprises three subsections: the first contains the newly recommended drugs, the second covers drug modifications, and the third outlines the drugs to delist due to withdrawal from the market among others.

2.1 Additions

No new drugs have been approved by the SFDA for the treatment of Pericoronitis since June 2020.

2.2 Modifications

The following modifications and adjustments have been implemented since the 2020 report:

Table 8. PE Modifications for Pericoronitis Medications

Drugs	PE Modifications
Acetylsalicylic acid	Modify AGE: not used in pediatric less than 18 years-old
Amoxicillin	Remove PA, QL. Add ST: this class is used only if local measures are not available or not effective; or if there are signs of spreading infection, systemic infection; or for an immunocompromised patient if there are signs of necrotizing disease. amoxicillin is used as an alternative to metronidazole/phenoxy-methyl penicillin or add on therapy to metronidazole in aggressive periodontitis.
Azithromycin	Remove PA, QL. Add ST: antibiotics should be used only if local measures are not available or not effective; or there are signs of spreading infection, systemic infection; or for an immunocompromised patient if there are signs of necrotizing disease and for patients with a history of a penicillin allergy.
Clarithromycin	Remove PA, QL. Add ST: antibiotics should be used only if local measures are not available or not effective; or there are signs of spreading infection, systemic infection; or

	for an immunocompromised patient if there are signs of necrotizing disease and for patients with a history of a penicillin allergy.
Clindamycin Hydrochloride	Remove PA, QL. Add ST: antibiotics should be used only if local measures are not available or not effective or; if there are signs of spreading infection, systemic infection; or for an immunocompromised patient if there are signs of necrotizing disease. clindamycin is an alternative to penicillin in patients with a history of a penicillin allergy.
Diclofenac Epolamine	Remove QL.
Diclofenac Potassium	Remove QL.
Diclofenac Sodium	Remove QL.
Diclofenac sodium, Lidocaine hydrochloride	Remove QL.
Ibuprofen	Remove QL.
Metronidazole	Remove PA, QL.
Naproxen	Remove QL.
Paracetamol	Remove QL.
Phenoxymethylpenicillin	Remove PA, QL.

2.3 Delisting

The medications below are no longer SFDA registered[11], therefore, it is recommended to delist the following drug from CHI formulary:

- Chlorhexidine
- Hydrogen peroxide

Section 3.0 Key Recommendations Synthesis

- Drug therapy is an integral component for the management of Pericoronitis. The goals of treatment of pericoronitis include relief of pain and discomfort, reduction of inflammation, clear infection and prevention of recurrence[6, 7, 8].
- Prioritize non-antibiotic measures, such as local drainage, whenever possible to avoid unnecessary antibiotic use. Emphasize the importance of local interventions to address pericoronitis, such as irrigation, debridement, and pus drainage[8, 9].
- The prescribing of antibiotics must be kept to a minimum and used only where there is a clear need, such as in the presence of swelling or signs of infection[8].
- The initial phase of treatment is aimed at eliminating the bacterial overgrowth and managing pain. After resolving the acute phase, the focus shifts to preventing recurrence, which involves the prevention of microbial buildup[8].
- Be cautious when considering surgical intervention during the acute phase and consider non-invasive methods like laser procedures. Utilize photodynamic therapy as a promising adjunctive antibacterial approach. Prioritize pain management with NSAIDs as the analgesics of choice. Consider topical analgesics for short-term pain relief during local interventions[8].
- If antibiotics are warranted for dento-alveolar infections, consider phenoxymethylpenicillin as the first-line antibiotic for adult patients, with a regimen of 500 mg four times a day for five days. Ensure patients take phenoxymethylpenicillin on an empty stomach for optimal absorption[6].
- In cases where there are concerns about patient adherence, amoxicillin can be considered as an alternative for dento-alveolar infections treatment[6].
- Clarithromycin tablets are not suitable for children under 12 years; instead, prescribe clarithromycin oral suspension for dento-alveolar infections[6].
- Antibiotics serve as an adjunct to local treatment when dealing with the spread of infection or systemic involvement.
    - For the treatment of pericoronitis, recommend a 3-day regimen of Metronidazole for adults at 400 mg three times daily if drug treatment is required. Prescribe Metronidazole for children based on their age. Advise patients taking Metronidazole to avoid alcohol consumption. Do not prescribe Metronidazole for patients taking warfarin.

- For the treatment of pericoronitis, recommend Amoxicillin: 500mg three times per day for 3 days [6, 7, 8, 9].

- During COVID-19 pandemic, it was essential to prioritize patient and staff safety. Hence, The primary focus of dental triage in primary care should revolve around providing the three As:
  - Advice
  - Analgesia
  - Antimicrobials (if deemed appropriate)[10].
- Recommend patient to have optimal analgesia and maintain good oral hygiene by using chlorhexidine mouthwash/gel or warm saltwater mouthwash. Gently brush area, ideally with small-headed toothbrush (benzydamine mouthwash or spray may make toothbrushing less painful). Prescribe antibiotics if you are concerned about swelling or if there are signs of systemic infection (fever, malaise)[7, 8, 10].
- During pandemic, if patient has spreading infection without airway compromise or if patient has continuing or recurrent symptoms, refer to designated urgent dental care center for possible extraction[10].
- Most odontogenic pain can be relieved effectively using paracetamol and/or ibuprofen to provide optimal analgesia. Optimal analgesia is characterized by using the minimal effective amount of pain relievers for the shortest required period to manage symptoms while staying within recommended dose limits, considering factors such as the patient's age, weight, and pertinent health conditions[9].
- Analgesic that can be used include oral paracetamol, ibuprofen and diclofenac. However, each one of them should be used carefully depending on each underlying condition the patient might be presenting with. Moreover, it is very important to check the patient’s current use of analgesics before advising or prescribing analgesics. In particular, overdose with paracetamol is dangerous because it can cause hepatic damage that is sometimes not apparent for 4–6 days and can be fatal[9].
- On top of the orally available analgesics, patient can also benefit from Topical analgesics that are intended for pain management during local interventions. Due to their short-term effects and high concentration, they are not suitable for continuous pain relief[8].
- Evaluate factors such as tooth eruption, auto-transplantation, orthodontic treatment, and the patient's medical history when making decisions about tooth extraction. Consider tooth extraction only when other conservative measures have failed or for second or subsequent episodes of pericoronitis[8].

Section 4.0 Conclusion

This report serves as **an annex to the previous CHI Pericoronitis report** and aims to provide recommendations to aid in the management of Pericoronitis. It is important to note that these recommendations should be utilized to support clinical decision-making and not replace it in the management of individual patients with Pericoronitis. Health professionals are expected to consider this guidance alongside the specific needs, preferences, and values of their patients when exercising their judgment.

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Section 6.0 Appendices

Appendix A. Prescribing Edits Definition

Some covered drugs may have additional requirements, rules or limits on coverage. These requirements and limits may include:

Prescribing edits Tools	Description
AGE (Age):	Coverage may depend on patient age
CU (Concurrent Use):	Coverage may depend upon concurrent use of another drug
G (Gender):	Coverage may depend on patient gender
MD (Physician Specialty):	Coverage may depend on prescribing physician's specialty or board certification
PA (Prior Authorization):	Requires specific physician request process
QL (Quantity Limits):	Coverage may be limited to specific quantities per prescription and/or time period
ST (Step Therapy):	Coverage may depend on previous use of another drug
EU (Emergency Use only):	This drug status on Formulary is only for emergency use
PE (Protocol Edit):	Use of drug is dependent on protocol combination, doses and sequence of therapy

Appendix B. Pericoronitis Scope

Section	Rationale/Updates
Section 1.2 Scottish Dental Clinical Effectiveness Programme Drug Prescribing For Dentistry Dental Clinical Guidance **(2021)**[6]	**Updated recommendations:** **Management of acute dento-alveolar infections:** o In October 2020, the Scottish Antimicrobial Prescribing Group (SAPG) and its Dental sub-group issued a statement regarding the management of acute dento-alveolar infections. o The SAPG statement emphasizes that antibiotic treatment should only be considered when immediate drainage cannot be achieved through local measures or when there is clear evidence of the infection spreading or involving the systemic system. o In cases where antibiotic intervention becomes necessary, **phenoxymethylpenicillin** is now recommended as the preferred first-line antibiotic. This choice is based on its narrower spectrum of activity, which reduces the likelihood of promoting antimicrobial resistance. o The recommended adult regimen for phenoxymethylpenicillin is 500 mg taken four times a day for a duration of five days. Each tablet should be ingested whole with water, at least 30 minutes before eating, as taking phenoxymethylpenicillin with meals can slightly diminish its absorption. o In cases where there are concerns regarding a patient's adherence to this regimen, **amoxicillin** is a suitable alternative. o **Clarithromycin** tablets are not licensed in children under 12 years. Clarithromycin oral suspension should be prescribed for this age group. **Necrotizing Ulcerative Gingivitis and Pericoronitis:** o The following replaces the drug regimen box for Metronidazole Tablets (adult dose change). o If drug treatment is required, an appropriate 3-day regimen is: Metronidazole Tablets, 400 mg, 1 tablet three times daily. o For children: Metronidazole Tablets, 200 mg, or Oral Suspension, 200 mg/5 ml - 1-2 years 50 mg three times daily - 3-6 years 100 mg twice daily

<table>
<tr><td></td><td>
- 7-9 years 100 mg three times daily
- 10-17 years 200 mg three times daily

o Advise patient to avoid alcohol (metronidazole has a disulfiram-like reaction with alcohol).

o Do not prescribe metronidazole for patients taking warfarin.
</td></tr>
<tr><td>Addition of a new section:
NHS/SDCEP Management of Acute Dental Problems During COVID-19 Pandemic (2020)[10]</td><td>
o When assessing patients, it is essential to prioritize patient and staff safety, the patient's best interests, professional judgment, local urgent dental care center protocols, and the prioritization of the most critical care needs.

o The primary focus of dental triage in primary care should revolve around providing the three As:
- Advice
- Analgesia
- Antimicrobials (if deemed appropriate).

o Patients should be informed that treatment options are currently quite limited, and they should be encouraged to contact again in 48-72 hours if their symptoms have not improved.

o Dental conditions that patients are unable to self-manage and necessitate emergency care should be referred according to the flowchart below: (Please note that the diagram provided offers a simple method for managing patient care through telephone triage and may not encompass all scenarios but addresses the most commonly presented symptoms).

<table>
<tr><th>Problem (symptoms)</th><th>Management</th></tr>
<tr><td>Acute pericoronitis
• Pain around a partially erupted tooth
• Swelling of the gingiva around tooth
• Discomfort with swallowing
• Limited mouth opening
• Unpleasant taste or odour from affected area
• Fever
• Nausea
• Fatigue</td><td>Advice and self help
• Recommend optimal analgesia.
• Recommend chlorhexidine mouthwash/gel or warm saltwater mouthwash.
• Gently brush area, ideally with small-headed toothbrush (benzydamine mouthwash or spray may make toothbrushing less painful).</td></tr>
</table>
</td></tr>
</table>

		• Prescribe antibiotics if you are concerned about swelling or if there are signs of systemic infection (fever, malaise). **Urgent care** • If patient has spreading infection without airway compromise or if patient has continuing or recurrent symptoms, refer to designated urgent dental care centre for possible extraction. **Emergency care** • If patient has spreading infection with or likely to have airway compromise and/or severe trismus contact 999 or A&E
Addition of a new section: SDCEP Analgesic and Antibiotic Contraindications and Cautions Supplement **(May 2021)**[9]	o In dental practice, some medications come with significant contraindications and precautions for patients with specific medical conditions, including heart or circulatory disorders, renal or hepatic impairments, or those who face an elevated risk of gastrointestinal adverse reactions. o When a medication is contraindicated for a particular medical condition, it is imperative to avoid prescribing that drug to patients with that condition. o In cases where a medication has a caution specified for a particular medical condition, the medication may be prescribed to a patient with that condition if a safer alternative is not available. Nevertheless, it is essential to closely monitor the patient for adverse effects or any deterioration in their condition, and in some instances, a dose reduction might be advisable. **General principles:** o Most odontogenic pain can be relieved effectively using paracetamol and/or ibuprofen to provide optimal analgesia. Optimal analgesia is characterized by using the minimal effective amount of pain relievers for the shortest required	

	period to manage symptoms while staying within recommended dose limits, considering factors such as the patient's age, weight, and pertinent health conditions. o The prescribing of antibiotics **must be kept to a minimum** and used only where there is a clear need. Treat dental abscesses in the first instance by using local measures to achieve drainage, with removal of the cause where possible. o Antibiotics are not indicated in the absence of swelling or other signs of infection. o Where analgesics and/or antibiotics are necessary, an up-to-date medical history should be obtained from the patient. This should include details of any medical conditions, current medications (including over-the-counter drugs, e.g. analgesics) and allergies that the patient might have. o It is also important to establish the patient's self-management to date to check for possible overdose of analgesics. o Be aware that prescribing for some patient groups, such as the elderly, patients who are immunocompromised or with hepatic or renal problems, patients who are pregnant and nursing mothers might differ. o If the patient has a relevant underlying health condition, consider liaising with their general medical practitioner or specialist. o Advise patients to contact the practice if their symptoms persist or worsen. **Contraindications and cautions** o It is essential to first check the patient's current use of analgesics before advising or prescribing analgesics. In particular, overdose with paracetamol is dangerous because it can cause hepatic damage that is sometimes not apparent for 4–6 days and can be fatal. o Paracetamol is present in many over-the-counter preparations and you should identify all paracetamol-containing medications that a patient has ingested. o A patient who ingests a therapeutic excess of paracetamol (defined as more than the recommended daily dose [8 x 500 mg tablets for adults] and more than or equal to 75 mg/kg in any 24-hour period) should be referred for assessment in an emergency department.

Drug regimens that may be recommended or prescribed by a dentist for an adult patient with dental pain are shown in the following table with the order of the drug regimens from left to right reflecting a stepwise approach to achieving optimal analgesia.

Adult Analgesic Dose / **Condition**	**Paracetamol** (up to 4 x 1g daily)	**Ibuprofen** (up to 4 x 400 mg daily)	**Ibuprofen** (up to 4 x 600 mg daily)	**Ibuprofen** (up to 4 x 400 mg daily) + **Paracetamol** (up to 4 x 1 g daily)	**Ibuprofen** (up to 4 x 600 mg daily) + **Paracetamol** (up to 4 x 1 g daily)	**Diclofenac** (up to 3 x 50 mg daily) + **Paracetamol** (up to 4 x 1 g daily)
None	✓	✓	✓	✓	✓	✓
Existing non-dental NSAID use (excluding low dose aspirin)	✓	C[1]	C[1]	C[1]	C[1]	C[1]
Low dose aspirin	✓	C[2]	C[2]	C[2]	C[2]	X[2]
Elderly patients >65 yrs	✓	C[3]	X[3]	C[3]	X[3]	X[3]
Low body weight, alcohol dependence, chronic alcoholism, chronic malnutrition, or dehydration	C[4]	C[5]	C[5]	C[4,5]	C[4,5]	C[4,5]
Pregnancy	✓	X[6]	X[6]	X[6]	X[6]	X[6]
Breastfeeding	✓[7]	C[7]	C[7]	C[7]	C[7]	X
Allergic						
History of hypersensitivity/severe allergic reaction to an NSAID (including aspirin) e.g. asthma, rhinitis, angioedema or urticaria	✓	X	X	X	X	X
History of hypersensitivity to paracetamol	X	✓	✓	X	X	X
Allergic disorders (e.g. allergy to other medicines, foods, latex or pollens)	✓	C[8]	C[8]	C[8]	C[8]	C[8]
Respiratory						
Asthma	✓	C[9]	C[9]	C[9]	C[9]	C[9]
Cardiac/circulatory						
Severe heart failure	✓	X	X	X	X	X
Mild to moderate heart failure	✓	C[10]	X[10]	C[10]	X[10]	X
Ischaemic heart disease, cerebrovascular disease, or peripheral arterial disease	✓	C[11]	X[11]	C[11]	X[11]	X
Hypertension	✓	C[12]	X[12]	C[12]	X[12]	X[12]

Adult Analgesic Dose / Condition	Paracetamol (up to 4 x 1g daily)	Ibuprofen (up to 4 x 400 mg daily)	Ibuprofen (up to 4 x 600 mg daily)	Ibuprofen (up to 4 x 400 mg daily) + Paracetamol (up to 4 x 1 g daily)	Ibuprofen (up to 4 x 600 mg daily) + Paracetamol (up to 4 x 1 g daily)	Diclofenac (up to 3 x 50 mg daily) + Paracetamol (up to 4 x 1 g daily)
Gastrointestinal						
Active gastrointestinal (GI) bleeding or GI ulcer *or* History of GI bleeding or ulcer related to previous NSAID use *or* History of two or more GI bleeds or ulcers	✓	X	X	X	X	X
History of one previous bleed or ulcer not associated with NSAID use	✓	C[13]	C[13]	C[13]	C[13]	C[13]
Inflammatory bowel disease	✓	C[14]	C[14]	C[14]	C[14]	C[14]
Hepatic						
Severe hepatic impairment (serum albumin <25 g/l or Child-Pugh score of 10 or more)	C[15]	X	X	X	X	X
Hepatic impairment (mild to moderate)	C[15]	C[16]	C[16]	C[15,16]	C[15,16]	C[15,16]
Renal						
Severe renal impairment (eGFR <30 mL/ minute/1.73 m^2)	C[17]	X	X	X	X	X
Renal impairment (mild to moderate)	✓	C[18]	C[18]	C[18]	C[18]	C[18]
Bleeding tendencies						
Anticoagulant use	✓	C[20]	C[20]	C[20]	C[20]	C[20]
Bleeding disorders	✓	C[21]	C[21]	C[21]	C[21]	C[21]

Green: can be prescribed/advised for these patients

Yellow: prescribe/advise with caution

Red: do not prescribe/advise for these patients

22. Patients who are already taking an NSAID, whether it's prescribed or not, regularly for a non-dental condition should refrain from taking an additional NSAID to manage dental pain.
23. When prescribing ibuprofen for patients who are taking low-dose aspirin, exercise caution. Adding an NSAID may diminish the cardioprotective benefits of low-dose aspirin and increase the risk of gastrointestinal bleeding. If necessary to prescribe an NSAID for patients on low-dose aspirin, consider ibuprofen up to a maximum of 1200 mg daily, in combination with a PPI, or consult the patient's general medical practitioner (GMP) for guidance. Diclofenac is not recommended in this guide for patients on low-dose aspirin due to contraindications for some patients.
24. Elderly patients face an elevated risk of cardiovascular, renal,

	and significant gastrointestinal adverse effects, including GI bleeding and perforation, which could be fatal. Therefore, prescribe ibuprofen with caution and do not exceed 1200 mg per day. Co-prescription of a PPI is advised, and you should coordinate with the patient's GMP if a PPI is not currently prescribed. Monitoring of blood pressure, renal function, and signs of heart failure may be necessary within 1–2 weeks of initiating or increasing the dose of an NSAID. Consult the patient's GMP for further discussion. Diclofenac is not recommended for elderly patients due to increased cardiovascular risk. 25. When prescribing paracetamol for individuals weighing less than 50 kg, use clinical judgment to adjust the dose. Exercise caution when prescribing paracetamol in cases of alcohol dependence, chronic alcoholism, chronic malnutrition, or dehydration. 26. NSAIDs should be avoided in individuals with dehydration due to the risk of acute kidney injury. For patients with chronic alcoholism and alcohol dependence, the GI risk is increased with NSAIDs. Avoid NSAIDs if possible or prescribe with a PPI. 27. Paracetamol is the preferred analgesic during pregnancy, as NSAIDs should generally be avoided unless the benefits clearly outweigh the risks. If necessary, a GMP may prescribe an NSAID at the lowest effective dose for the shortest time possible. NSAIDs should not be used after the 30th week of pregnancy without specialist advice and regular fetal monitoring. 28. Paracetamol is the recommended analgesic for breastfeeding women. Seek expert advice if the infant is preterm or has low birth weight. Use NSAIDs with caution. If an NSAID is necessary, ibuprofen is preferred at the lowest effective dose for the shortest time. 29. Prescribe NSAIDs cautiously for individuals with allergic disorders, as they may have an increased risk of NSAID-induced allergies. Advise patients to watch for allergic symptoms and discontinue NSAID use if such symptoms occur. 30. Exercise caution when prescribing NSAIDs for individuals with asthma, as all NSAIDs have the potential to exacerbate asthma, either acutely or as a gradual worsening of

	symptoms. Warn patients about the potential development of NSAID-induced asthma, especially later in life. 31. Prescribe ibuprofen with caution for individuals with cardiac impairment or mild to moderate heart failure, with monitoring for renal function. Do not prescribe NSAIDs in cases of severe heart failure. The recommended dose for ibuprofen is up to 1200 mg per day. For higher doses, consult with the patient's GMP. 32. Prescribe ibuprofen with caution for individuals with cerebrovascular disease, ischemic heart disease, peripheral arterial disease, or risk factors for cardiovascular events. The recommended dose is up to 1200 mg per day, and for higher doses, consult with the patient's GMP. 33. Prescribe NSAIDs with caution for individuals with hypertension, as NSAIDs may impair renal function. The recommended dose for ibuprofen is up to 1200 mg per day, and for higher doses, consult with the patient's GMP. Blood pressure monitoring may be required after starting long-term NSAID treatment or increasing the dose. 34. Exercise caution when prescribing NSAIDs for individuals with a history of GI ulceration or bleeding, or those at high risk of GI adverse effects. Factors increasing the risk of NSAID-induced GI adverse events include age over 65, high NSAID dose, history of GI ulcers, bleeding, or perforation, concomitant use of medications that increase the likelihood of upper GI adverse events, serious comorbidities (e.g., cardiovascular disease, hepatic or renal impairment, diabetes, or hypertension), heavy smoking, excessive alcohol consumption, previous adverse reactions to NSAIDs, and prolonged NSAID use. Co-prescription of a PPI is advised; consult the patient's GMP for further discussion. 35. Prescribe NSAIDs with caution for individuals with inflammatory bowel disease, as NSAIDs may increase the risk of developing or exacerbating ulcerative colitis or Crohn's disease. 36. Paracetamol is generally considered a suitable analgesic for most individuals with liver disease. However, the manufacturer recommends caution, and dose reduction may be necessary for certain patients, such as those with moderate or severe acute hepatitis. 37. Exercise caution when prescribing NSAIDs for individuals

	with mild to moderate hepatic impairment and avoid prescribing them in cases of severe hepatic impairment. Dose reductions and liver function monitoring may be required. 38. Prescribe paracetamol with caution for individuals with severe renal impairment, and dose reduction may be necessary. Consult with the patient's GMP for further discussion. 39. Exercise caution when prescribing NSAIDs for individuals with mild to moderate renal impairment, and avoid prescribing them in cases of severe renal impairment. Sodium and water retention may occur, potentially leading to renal function deterioration and renal failure. For patients with impaired renal function who cannot avoid NSAID use, monitor renal function 1–2 weeks after starting or increasing the dose of an NSAID and consult with the patient's GMP. 40. For individuals taking anticoagulants, paracetamol is considered safer than aspirin or NSAIDs since it does not affect platelets or cause gastric bleeding. Patients should have their usual INR checks scheduled and inform their clinician if they have been regularly using paracetamol. 41. Whenever possible, avoid simultaneous use of NSAIDs with anticoagulants (e.g., warfarin, dabigatran). All NSAIDs can cause GI irritation and reduce platelet aggregation, potentially exacerbating bleeding events. If concurrent use is necessary, be aware of the potential risks of bleeding and consider providing gastroprotection. Consult the patient's GMP if a PPI is required but not currently prescribed. 42. Prescribe NSAIDs with caution for patients with bleeding disorders (e.g., hemophilia, von Willebrand disease, and clotting factor deficiencies). Consult with the patient's GMP or hematologist for guidance. **Amoxicillin/Phenoxymethylpenicillin** **Contraindications:** Avoid prescribing amoxicillin or phenoxymethylpenicillin to individuals with a history of anaphylaxis, urticaria, or an immediate rash following penicillin administration, as these individuals are at risk of immediate hypersensitivity reactions, including anaphylaxis and rashes. **Cautions** Exercise caution when prescribing amoxicillin and

	phenoxymethylpenicillin to individuals who: • Have a known hypersensitivity to cephalosporins, as there is some evidence of partial cross-reactivity. • Have renal impairment, as dose adjustment may be necessary in cases of severe renal impairment. • Are taking warfarin, as amoxicillin or phenoxymethylpenicillin may potentially influence the anticoagulant effect of warfarin. If either antibiotic is prescribed to patients on warfarin, the INR should be monitored 4-7 days after starting the antibiotic course. **Metronidazole** **Contraindications:** Do not prescribe metronidazole to individuals who: • Have a known hypersensitivity to metronidazole or nitroimidazoles. • Are taking warfarin. **Cautions** Metronidazole can lead to a disulfiram-like reaction when combined with alcohol. Therefore, patients should be advised to abstain from alcohol while taking metronidazole.
Addition of a new section: NHS pericoronitis antimicrobial guidelines **(2021)**[7]	○ Refer to dentist for irrigation and debridement. ○ If persistent swelling or systemic symptoms use Metronidazole. ○ Use antiseptic mouthwash if pain and trismus limit oral hygiene. **Drug details** ○ **Amoxicillin:** 500mg TDS for 3 days **Penicillin Allergy or as Above:** ○ **Metronidazole:** 400mg TDS for 3 days Use the following until oral hygiene possible: ○ **Chlorhexidine:** Rinse mouth for 1 minute BD with 5 ml diluted with 5-10 ml water or ○ **Hydrogen Peroxide:** Rinse mouth for 2 mins TDS with 15ml diluted in ½ glass warm water.
Addition of a new section: A review of	**Treatment** ○ The primary underlying cause of pericoronitis is a structural predisposition that allows the accumulation of bacteria,

evidence-based recommendations for pericoronitis management and a systematic review of antibiotic prescribing for pericoronitis among dentists: Inappropriate pericoronitis treatment is a critical factor of antibiotic overuse in dentistry **(2021)**[8]	resulting in inflammation of the surrounding soft tissues. o The initial phase of treatment is aimed at eliminating the bacterial overgrowth and managing pain. o After resolving the acute phase, the focus shifts to preventing recurrence, which involves the prevention of microbial buildup. **Managing Infection** o In most instances, pericoronitis can be effectively addressed through local interventions, which include the removal of debris and irrigation in areas where fluid stagnation occurs. o Antibiotics are typically reserved for severe cases or when systemic symptoms are present. **A. Local Intervention** - Irrigate the pericoronal space with a sterile solution (such as saline, antiseptics for oral mucosa, e.g., hydrogen peroxide, or chlorhexidine). - Gently remove plaque and debris (debridement) from the affected pocket using periodontal instruments and swabs. - Combining irrigation and debridement may yield better outcomes. - Drain any accumulated pus. - Soft tissue or occlusal adjustments should be made to prevent traumatic occlusion. In some cases, extracting an antagonist tooth may be considered. - Patients should receive instructions on oral hygiene practices, including gentle and meticulous mechanical cleaning of the affected area and mouth rinsing with antiseptics (e.g., 0.12–0.2% chlorhexidine for one minute, twice daily). o Surgical intervention during the acute phase remains a subject of debate. Advocates argue that it leads to a rapid resolution, while opponents view it as an unnecessary risk for spreading the infection. No consensus has been reached on this matter. o If surgery becomes necessary, such as for abscess drainage, cautery or laser procedures have shown to be more advantageous than scalpel methods. o Although ozone therapy can complement local treatment,

	there is no substantial evidence supporting its effectiveness. o Photodynamic therapy presents a promising adjunctive antibacterial approach and is discussed separately. The use of caustic agents like chromic acid, phenol liquefactum, trichloroacetic acid, or Howe's ammoniacal solution for chemical cauterization of pain nerve endings is discouraged due to their toxic nature when applied in the oral cavity. o Local anesthesia can be employed during local interventions, but its effectiveness may be reduced in the acidic environment of infected tissues. o Alternatively, topical analgesics can offer short-term pain relief, providing a window to perform local interventions. **B. Antibiotics** o Antibiotics serve as an adjunct to local treatment when dealing with the spread of infection or systemic involvement. **Antibiotic Prescription for Pericoronitis** **Metronidazole:** • For Adults: Orally, 400 mg* (three times daily for up to five days) or Intravenously, 500 mg** (every 8 h, given over 20 min) • For Children (over 10 years): Orally, 200–250 mg* or Intravenously, 7.5 mg/kg*** (every 8 h, max. 500 mg per dose) **Amoxicillin:** • For Adults: Orally, 500 mg* (every 8 h for up to five days; 1 g every 8 h in severe infection) or Intravenously, 500 mg** every 8 h; 1 g every 6 h in severe infection • For Children (over 12 years): Orally, 500 mg*** every 8 h for up to five days; 1 g every 8 h in severe infection or o Antibiotics are a crucial treatment option when pericoronitis involves infection spread or systemic complications. o However, their usage should align with principles for appropriate antibiotic therapy, necessitating microbial culture to guide the selection of effective antibiotics, such as metronidazole and amoxicillin. o While various antimicrobials have been explored for odontogenic infections, no clear evidence supports one over another.

	○ Proper antibiotic dosing, considering the minimum inhibitory concentration and the required duration, is crucial, with deviations justified only for valid reasons. ○ In severe cases, increased dosage or frequency, or a combination of amoxicillin and metronidazole, may be considered. ○ Patients allergic to penicillin may use erythromycin as an alternative. Those taking metronidazole should avoid alcohol, and warfarin's anticoagulant effect may be enhanced by metronidazole. ○ Patients with severe trismus, swollen floor of the mouth, or breathing difficulties should be referred to a hospital. **C. Photodynamic Therapy** ○ Antimicrobial photodynamic therapy (aPDT) offers a non-invasive, cytotoxic treatment option with a low likelihood of inducing drug resistance. ○ Essentially, this method involves applying a photosensitizing agent to the target tissue and activating it with laser light of a specific wavelength in the presence of oxygen. ○ Upon irradiation, the photosensitizer molecules become excited and transfer energy to oxygen molecules, leading to the formation of oxygen free radicals. These radicals are highly cytotoxic and aid in eliminating bacteria. ○ Photodynamic therapy is a technique also applied in dentistry, including the treatment of pericoronitis. ○ Although the current number of studies focused on aPDT and pericoronitis is insufficient to make firm conclusions, this method appears to be a promising adjunctive antibacterial therapy for pericoronitis. **Pain Management** ○ Pain, a symptom of inflammation, is the most common reason leading a patient suffering from pericoronitis to oral healthcare providers. ○ It significantly reduces the quality of life and limits the patient in his/her daily routine, social life, eating a regular diet, chewing food, and talking. ○ Thus, pain relief should be an integral part of pericoronitis treatment. ○ The analgesics of choice should be nonsteroidal anti-inflammatory drugs (NSAIDs).

- Whether by administering local anesthesia or topical anesthesia, pain management is also an essential part of local treatment as it increases patient compliance during the procedure.

A. Oral Analgesics

- Oral analgesics are recommended for patients experiencing pain that significantly impairs their quality of life and daily activities. The necessity for analgesics is individually determined based on the patient's subjective assessment of their pain.

Oral Analgesic Prescription for Dentistry

Ibuprofen:

- For Adults: 400 mg (The dose can be used four times a day for up to five days). In adults, the dose can be increased to a maximum of 2.4 g daily. Administration is preferably done after meals.
- For Children:
  - 6–11 months: 50 mg
  - 1–3 years: 100 mg
  - 4–6 years: 150 mg
  - 7–9 years: 200 mg
  - 10–11 years: 300 mg
  - 12–17 years: 300–400 mg
  - The doses for children and adolescents can be administered four times a day for up to five days.

Aspirin:

- **Adults:** 600 mg
- **Children:** Not recommended for children due to Reye's syndrome
  - <16 years: *
  - > 16 years: As for adults
- The doses for both adults and children can be used four times a day for up to five days.
- Aspirin is a blood thinner and should not be prescribed before or after surgery.
- Administration is preferably done after food.

Diclofenac:

- **Adults:** 50 mg

- **Children:** Not recommended for dental use in children
- The doses for adults can be used three times a day for up to five days.
- The maximal daily dose is 150 mg.

B. Topical Analgesics

- Topical analgesics are intended for pain management during local interventions. Due to their short-term effects and high concentration, they are not suitable for continuous pain relief.
- The use of topical analgesics before a meal is a subject of debate, as their potent analgesic effect can inadvertently lead to self-inflicted damage.

Table: List of Topical Analgesics, Their Availability, Onset Time, and Duration

Topical Analgesics	Availability	Concentration	Onset Time (min)	Duration (min)
Benzocaine *	gel, spray, ointment, solution	1–20%	0.5	5–15
Tetracaine Hydrochloride **	spray, ointment, solution	0.2–2.0%	2	20–60
Lidocaine	gel, spray, ointment, solution	2–5%	1–2	15
Cetacaine	solution	14% benzocaine, 2% butamben, 2% tetracaine hydrochloric acid	0.5	30–60
EMLA ***	cream	1:1 mixture of 2.5% prilocaine and 2.5% lidocaine	2	10

Oraqix	gel	2.5% lidocaine and 2.5% prilocaine	0.5	20

- Administer the minimal necessary amounts of topical analgesics to avoid any risk of intoxication, ensuring that the application is specifically directed to the affected area. It is important that the targeted area is dry to enhance absorption, and any surplus analgesics should be carefully wiped away. When using spray analgesics, it is advisable to first apply them to a swab, which can then be used to deliver the medication to the affected tissue, thereby minimizing the dosage.

Prevention

- Preventing disease recurrence is a fundamental aspect of effective treatment and a means to reduce antibiotic use.
- Pericoronitis is primarily caused by the buildup of microbes due to local morphological conditions. Hence, successful pericoronitis prevention centers on averting bacterial stagnation.
- Although the treatment's desired outcome is clear, the path to achieving it can present a therapeutic dilemma.

Tooth Extraction

- The primary question often revolves around the necessity for tooth extraction. While guidelines and recommendations can offer valuable insights, the complexity of each case and the need for an individualized approach always necessitate the expertise of a dental specialist. In the context of lower third molar extraction due to pericoronitis, clinical practice guidelines from the NHS issued by NICE provide the following recommendations:
- Emphasis is placed on plaque formation and pericoronitis. Although plaque formation is a risk factor, it does not, by itself, warrant surgery. The extent to which the severity or recurrence of pericoronitis should influence the decision for surgical removal of a third molar remains uncertain. The evidence suggests that a first episode of pericoronitis, unless exceptionally severe, should not be considered a surgical indication. Second or subsequent episodes should be considered an appropriate indication for surgery.
- The decision should also take into account whether further

	tooth eruption can rectify the current unfavorable morphological conditions and whether there is a chance to establish a functional tooth position. Additional factors, including autotransplantation, orthodontic treatment, the proximity of the mandibular canal, and the patient's medical history, should also be evaluated. If the decision is made to extract the tooth as a definitive solution to pericoronitis, it should not be unduly postponed. Teeth with incomplete development, marked for removal, should be extracted promptly to minimize invasiveness, bone loss, and potential complications. **Pericoronal Tissue Surgery** o An alternative to tooth extraction is pericoronal tissue surgery, which encompasses the removal of soft tissue covering the tooth, such as operculectomy, and potentially gingivoplasty around the tooth to eliminate deep pockets. o This can be achieved through traditional techniques using a scalpel, although more advanced methods employing a diode laser or cautery have demonstrated significant advantages. o Laser or cautery gingivectomy procedures are safe and entail the removal of excess soft tissue to expose the crown of partially erupted teeth, facilitating improved hygiene maintenance. The use of lasers and cautery in pericoronal tissue management is associated with less bleeding, suturing, postoperative discomfort, and complications compared to scalpel-based procedures. The objective of this treatment is to remove all excessive tissues that foster bacterial retention and hinder its elimination during routine dental hygiene. o An evaluation should follow the treatment to assess the outcomes achieved. If the desired result is not attained, additional soft tissue surgery should be considered. In comparison to extraction, pericoronal tissue surgery results in less pain and fewer complications. o In some cases, the adjunct use of orthodontics can be employed to attain the proper tooth position and alleviate the issue. **Oral Hygiene** o Diligent oral hygiene constitutes a fundamental component

	of the preventive measures for conditions associated with plaque buildup, such as pericoronitis. Therefore, it is imperative to provide oral hygiene instructions to all patients.

Appendix C. PubMed Search Methodology Terms

The following PubMed Search Methodology was opted:

Query	Filters	Search Details	Results
(Pericoronitis[MeSH Terms]) OR (Pericoronitides[Title /Abstract])	Guideline, in the last 10 years	("pericoronitis"[MeSH Terms]) AND ((y_10[Filter]) AND (guideline[Filter]))	0

Appendix D. Pericoronitis Treatment Algorithm

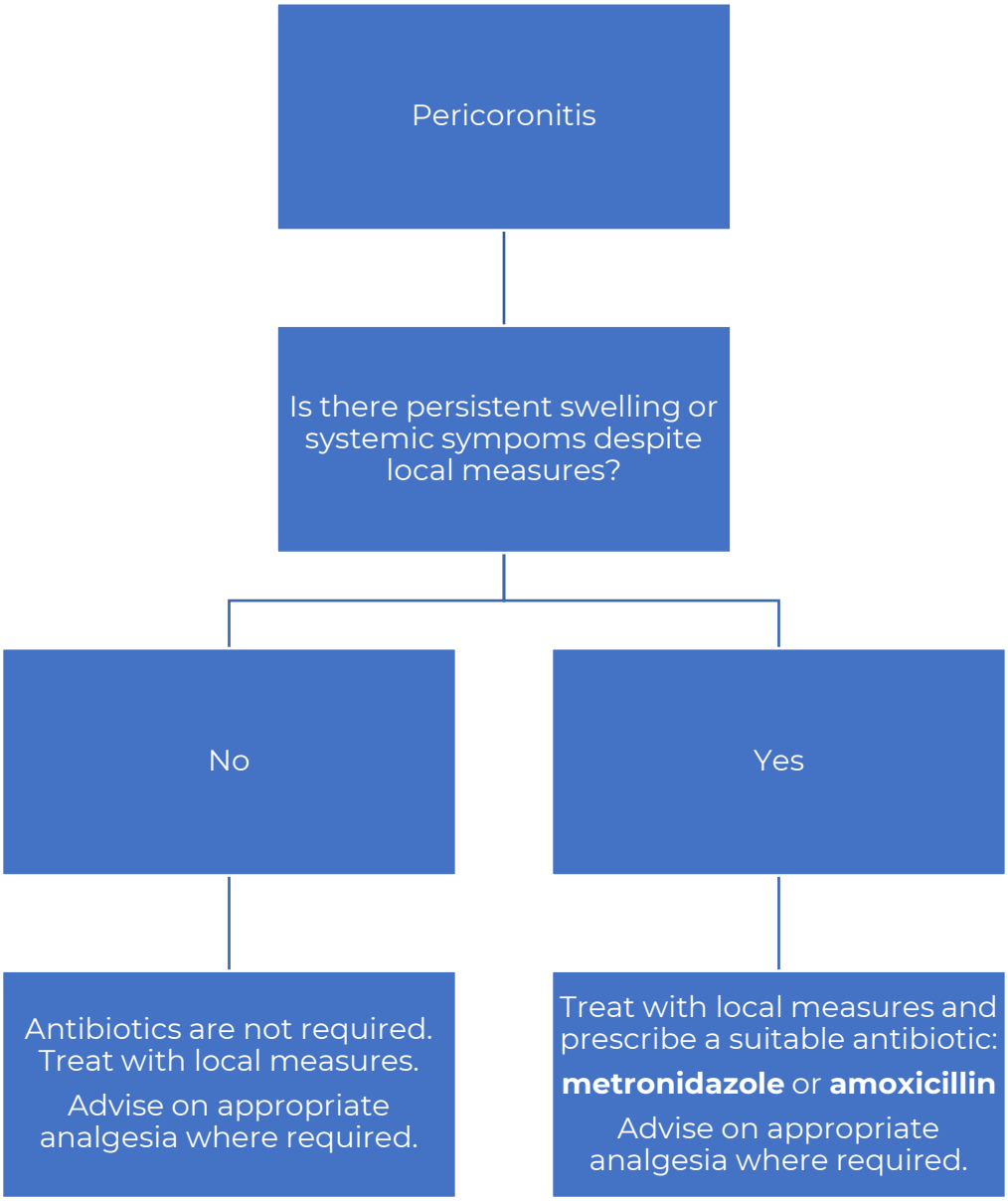

Figure 2. *Pericoronitis Treatment Algorithm*