



The Oral & Dental Management of Patients Before, During and After Cancer Therapy

Guidance in brief

Full guidance available at www.rcseng.ac.uk/dental-faculties/fds/publications-guidelines/clinical-guidelines

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The Oral & Dental Management of Patients Before, During and After Cancer Therapy provides evidence-based guidance to support dental professionals in optimising outcomes and quality of life for individuals undergoing cancer treatment. The guidance aims to support consistent, high-quality oral care through collaborative care pathways between haematologists, oncologists and dental teams, addressing the impact of cancer therapies on oral comfort and function. Recommendations address both adults and children and young people (CYP), with specific protocols for each group.

The following cancer therapy modalities are covered:

- Chemotherapy
- Immunotherapy
- Radiotherapy to the head and neck region
- Surgery to the head and neck region
- Haematopoietic stem cell transplantation – involves chemotherapy +/- total body irradiation

These recommendations support overall patient care and should be implemented in conjunction with the care priorities agreed with the haematology/oncology team.

This document contains a summary of the **key treatment recommendations**. The full guidance and supporting evidence is available at www.rcseng.ac.uk/dental-faculties/fds/publications-guidelines/clinical-guidelines/

Pathways

All cancer patients should have access to oral/dental care to prevent or minimise complications, including NHS general dental practitioners, community dental services and hospital-based dental services. Clear referral pathways should be in place for dental assessment **before** cancer treatment, ideally at least one month before head and neck radiotherapy. Pathways for urgent dental review **during** cancer therapy, and oral care protocols for **after** therapy, are essential to ensure continuity of care.

Protocols

There is no universally accepted dental protocol prior to cancer therapy delivery; however, optimising oral health is critical. Dental assessment and any necessary urgent care should be incorporated into the pre-treatment phase of cancer therapy, particularly when radiotherapy is planned or dental treatment may later be contraindicated. A comprehensive oral evaluation should be undertaken as soon as possible following cancer diagnosis.

Supporting tools

- > Patient information leaflets for adults and children undergoing cancer therapy
- > Oral care guidance for the nursing team
- > Acute changes during cancer therapy
- > Chronic changes following therapy
- > Haematological considerations for invasive dental procedures
- > Referral template for oral health care screening

Guideline review date: 2030

Access to dental care

- People undergoing cancer treatment should have access to dental services **before, during, and after** therapy.
- Cancer centres should notify specialist dental services of new cancer diagnoses. Community or general dental practitioners should also be informed, with shared care coordinated by hospital dental teams.
- Clear protocols are required to ensure timely access to urgent dental care **during** cancer treatment, in close coordination with oncology or haematology teams.

Adults

- Dental care should be tailored to cancer type and treatment-related risk, with the level of specialist involvement varying accordingly. For head and neck cancer, specialist hospital-based dental services must be embedded within the multidisciplinary team.
- Adults should ideally undergo **comprehensive dental assessment approximately one month before** cancer therapy, including radiographs where possible, to allow time for necessary dental interventions and recovery and to assess the risk of odontogenic complications.
- Dental care should be planned in close collaboration with oncology/haematology teams.
- **Elective dental treatment should generally be avoided during active cancer therapy**, with care focused on prevention and management of acute problems.
- **After cancer therapy, adults should receive a timely post-treatment dental review**, with head and neck cancer patients often requiring long-term specialist input, including prosthodontic care (e.g. obturators).
- Teledentistry may be used to support follow-up where access to services is limited.
- A patient-specific period of specialist oral health monitoring should be defined for head and neck cancer patients before discharge to primary care.
- Lifelong dental follow-up is required, usually by a general dental practitioner in liaison with specialist services, and individualised review intervals.

CYP

- CYP treated for cancer require early, intensive, and developmentally focused dental care due to their vulnerability to acute oral complications and long-term effects on growth and development.
- Referral to a specialist paediatric dental team at diagnosis is the gold standard.
- **All CYP should receive a dental assessment at diagnosis**, including radiographs where possible, and families should be counselled on acute oral complications of treatment and potential late effects on dental development, craniofacial growth and long-term oral health.
- CYP undergoing cancer treatment are at high risk of dental caries and should undergo dental examinations every three months **during** active therapy.
- **After** therapy, recalls should be individualised based on ongoing risk factors such as active disease, diet, enamel defects, or salivary dysfunction.
- CYP who have undergone haematopoietic stem cell transplantation (HSCT) should receive dental review at least every six months post-transplant, with closer monitoring where there is a history of radiotherapy or chronic graft versus host disease.
- Due to late effects and a significantly increased lifetime risk of oral malignancy, life-long dental follow-up is recommended for all CYP treated for cancer. Long-term care may be delivered by a general dental practitioner in close liaison with specialist dental services, according to patient age, treatment history and complexity. CYP with complex dental anomalies may be retained in specialist services.

Dental treatment planning

- For patients undergoing cancer therapy, dental treatment planning should identify and manage existing or potential oral disease, provide preventive care, and address urgent needs **before** treatment begins. Close liaison with oncology or haematology teams is essential for invasive procedures.
- Dental treatment should be avoided **during** cancer therapy where possible.

Adults

- Carious teeth should be restored or stabilised and infectious oral foci removed at least 10 days **before** cancer therapy. Patients should be dentally fit, with no active pathology, pain, or urgent needs. Asymptomatic periapical lesions <5 mm require clinical judgement.
- A tiered extraction approach is recommended: **Tier 1** teeth with poor prognosis or infection risk should be extracted; **Tier 2** teeth with guarded prognosis may be retained following informed patient consent regarding future risks e.g. osteoradionecrosis (ORN) and medication-related osteonecrosis of the jaw (MRONJ).
- **Before** cancer therapy, patients require a comprehensive oral examination with appropriate radiographs, multidisciplinary planning with oncology/haematology, and counselling on potential oral side effects. For head and neck surgery or radiotherapy, specialist dental assessment is advised, including tooth prognosis assessment, planned extractions and restorations, optimisation of oral hygiene, completion of initial periodontal therapy or endodontic treatment (ideally at least two weeks pre-radiotherapy), and advice on denture use. Teeth of doubtful prognosis should ideally be removed 10–21 days **before** cancer therapy.
- Long-term and regular follow-up is essential to reduce the risk of complications such as ORN and MRONJ, with tailored preventive care, cautious use of invasive procedures, professional mechanical plaque removal (PMPR) only when clinically indicated, and restorative and tooth-replacement strategies to support function and quality of life.

CYP

- Dental treatment planning should consider tooth prognosis, timing of exfoliation of primary teeth, and the risk of pain or infection **during** cancer therapy or HSCT. A proactive, often radical, approach is recommended. This includes extraction of teeth with poor prognosis, to minimise infection risk and avoid repeat general anaesthesia. Pulp treatment of primary molars is generally not advised.
- A high risk preventive strategy should be implemented from diagnosis throughout treatment.
- Restorative considerations include choice of the least invasive, permanent restorations supported by the strongest evidence.
- Where extractions are required, risks such as ORN and MRONJ should be discussed.
- General anaesthesia may be required due to anxiety, limited cooperation, or treatment complexity. The impact of metal restorations (including preformed metal crowns), on MRI image quality should be considered.
- Dental treatment should be completed **before** cancer therapy or HSCT where possible; when unavoidable, timing must be agreed with oncology or haematology teams, with blood counts checked 24–48 hours beforehand.
- Urgent invasive dental care should be provided by a Consultant or Specialist in Paediatric Dentistry and, where possible, combined with other procedures under general anaesthesia.
- Oral mucositis should be anticipated and preventative cryotherapy or photobiomodulation delivered (where available).

Abnormal blood counts

- Dental teams should consult medical colleagues **before** invasive dental treatment in **adults or CYP** with suspected or known abnormal blood counts, including haematological malignancies, receiving chemotherapy or certain biological agents, or with prolonged neutropenia.
- Assess bleeding and infection risk **before** invasive procedures involving manipulation of the muco-gingival junction (e.g. dental extractions or subgingival plaque removals).
- Work closely with haematology/oncology teams to coordinate dental care alongside medical treatment.
- If cancer or its treatment affects blood counts, haematology/oncology input may be required to arrange pre-procedure blood tests (within 24–48 hours), including at least a full blood count with differential.
- Discuss the results with the haematology/oncology team to confirm it is safe to proceed and to determine whether any haematological support (e.g. platelet transfusion) or antibiotic prophylaxis is required.

Preventive oral health

- Preventative care should be tailored and evidence-based, in line with *Delivering Better Oral Health: an evidence-based toolkit for prevention* (1), with a focus on toothbrushing, appropriate fluoride use, and dietary advice – particularly reducing sugar intake.

Adults

- Use a shared-care approach to support long-term engagement. Patients undergoing cancer therapy, especially head and neck radiotherapy or HSCT, are at high risk of dental caries and oral complications. Preventive care should start **before** cancer therapy and continue long-term using individualised, risk-based care plans that emphasise biofilm removal, fluoride use, dietary management, and regular monitoring.
- Chlorhexidine is not recommended for preventing caries, periodontal disease, or mucositis in head and neck cancer patients.
- Consistent home oral care should be emphasised **during** and **after** treatment.

Professional care

- **Before** cancer therapy, discuss potential oral side effects and caries risk, provide tailored advice, apply 2.26% fluoride varnish, and ensure access to trained dental professionals.
- **During** cancer therapy, offer personalised support as risks change, adapt oral care routines, manage symptoms, and work closely with the multidisciplinary team, including dietitians.
- **After** cancer treatment, focus on long-term oral disease prevention with risk-based recalls, prompt review, and close monitoring for high-risk patients (including ORN and oral cancer). Most patients can return to primary dental care for lifelong monitoring.

Home care

- **Before** cancer treatment, advise twice-daily brushing (including at night) without rinsing, using fluoride toothpaste ($\geq 1,350$ ppm; 2,800–5,000 ppm for high-risk patients). Recommend daily interdental cleaning where gingival inflammation is present and alcohol-free fluoride mouthwash (0.05%) at a different time to brushing. Provide dietary advice, involving dietitians where needed.
- **During** cancer therapy, maintain gentle daily oral hygiene, adapting aids as required (e.g. soft or children's toothbrushes, smaller interdental brushes). Avoid foam sponge sticks/swabs (poor efficacy and choking risk). Continue topical fluoride use in toothpaste and/or alcohol-

free fluoride mouthwash where possible and use sodium lauryl sulphate (SLS)-free, mild or unflavoured toothpaste if needed. Preventive advice should continue **after** cancer treatment.

- Address smoking and alcohol use at cancer diagnosis and throughout treatment, encouraging cessation or harm-reduction.

CYP

- Provide oral health education to children and parents/carers **before** cancer treatment begins, supported by written information.
- All CYP receiving cancer therapy should be considered at high risk of caries and be treated in line with *Delivering Better Oral Health* toolkit recommendations for high-risk patients (1).
- Recommend a small headed, soft bristled toothbrush **during** treatment. There is no strong evidence to support medicated mouthwashes.
- Families should be informed about potential long term oral effects of cancer therapy, such as xerostomia, which may increase caries risk.

Periodontal care

Adults

- Assess periodontal status using a basic periodontal examination (BPE) and the British Society of Periodontology UK Clinical Practice Guidelines to plan care (2). Where possible, provide initial periodontal therapy **before** cancer treatment, limited to preventive oral health advice, PMPR (ideally at least two weeks **before** cancer therapy), management of plaque-retentive factors, and short-term adjunctive antimicrobials if indicated. For periodontitis, complete a six-point pocket charting and sub-gingival instrumentation when feasible without delaying cancer treatment.
- Avoid periodontal therapy **during** cancer treatment; continue professional oral health support.
- Periodontal health should be reviewed and monitored according to diagnosis, risk status, and current evidence-based guidance.

Growth and development

CYP

- Monitor facial and dental development **during** and **after** cancer treatment; advise families on late oral effects.
- Childhood cancer therapy increases risk of dental abnormalities; risk is higher with younger age, higher radiation doses, alkylating agents, and multimodal therapy. Reduced vertical facial growth may occur.
- **Before** dental treatment, use orthopantomograms to assess dental anomalies and root development in CYP post-HSCT.
- Refer CYP with complex dental anomalies for specialist multidisciplinary care.

Dental extractions & orthodontics

<p>Dental extractions</p>	<p>Before cancer therapy, coordinate timing with the oncology team. Complete extractions at least 10 days before treatment begins using minimal trauma techniques. Avoid extractions during cancer therapy; if unavoidable, proceed only after discussion with the cancer team. Haematological support and/or antibiotic prophylaxis may be required.</p>
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	<p>After cancer therapy, avoid extractions in irradiated sites where possible because of ORN risk, especially in high-risk patients (e.g. mandibular involvement, concurrent chemotherapy, poor oral health) and consider alternative restorative options such as root canal treatment or crown amputation. Patients receiving bisphosphonates or other antiresorptive drugs are at risk of MRONJ; also avoid extractions where possible and consider alternatives. If extraction is unavoidable, provide clear risk information, use minimal trauma techniques, aim for primary closure, and consider prescription of antibiotics until healing is complete. Evidence for adjunctive therapies remains limited or unclear.</p> <p>CYP Remove teeth with a questionable prognosis in consultation with the oncology/haematology team, considering abnormal blood counts. Clearly explain the risks of post-radiotherapy extractions (including ORN and MRONJ) to patients and parents or carers.</p>
<p>Orthodontics</p>	<p>Adults and CYP Metal brackets and bonded retainers can cause MRI artefacts. Discuss with the orthodontic team whether to remove orthodontic appliances before cancer therapy due to increased risks of mucositis, xerostomia, and caries. Orthodontic treatment is generally not recommended during cancer therapy. After cancer therapy, treatment should be planned cautiously with the medical team, considering overall health, caries risk, and response to preventive measures. If root development has been affected, apply orthodontic forces carefully and explain risks clearly. Bisphosphonates may inhibit tooth movement; orthodontics should usually be avoided during and for a period after intravenous bisphosphonate therapy. Assess ORN and MRONJ risk carefully before orthodontic extractions.</p>

Restorative dentistry

<p>Dental restorations</p>	<p>Before cancer therapy, restore or stabilise carious teeth where possible, considering prognosis and increased post-treatment caries risk. Composite resin is preferred over glass ionomer for definitive restorations. Avoid routine restorations during cancer therapy; defer until the patient is stable or in remission. After therapy, use simple, definitive restorations (e.g. composite resin or amalgam); glass ionomers have higher failure rates after head and neck radiotherapy. Fluoride gel may improve outcomes in radiation-related caries. Crowns carry a high risk of marginal caries and require optimal oral hygiene and consideration of subgingival margins.</p> <p>CYP Use minimally invasive, evidence-based restorative approaches with definitive materials. Glass ionomer cements are not recommended for definitive restorations due to high failure rates. Preformed metal crowns (Hall Technique) are effective and acceptable but may cause MRI distortion; consider cumulative effects in children requiring repeated MRI imaging.</p>
<p>Dentures</p>	<p>Avoid dentures before cancer therapy where possible to reduce oral tissue</p>

	trauma. If worn, remove at night and clean meticulously; partial dentures increase plaque retention. Oral lubricants or artificial saliva may improve comfort in xerostomia. Acidic saliva substitutes (e.g. Glandosane®) should be used only in edentate patients. During and after cancer therapy, denture fit may deteriorate; reassess and discontinue denture use if painful. Treat candidal infection with antifungals applied to the denture or incorporated into soft linings; microwave disinfection may be used for maxillary complete dentures.
Obturators	Plan and fit obturators peri-operatively for maxillary or mid-face resections in coordination with the head and neck cancer team. Quality-of-life outcomes are comparable to surgical reconstruction. Specialist restorative dentist input may be required to coordinate impressions and peri-operative fitting. Long-term specialist review is required to maintain fit and prevent trauma or infection.
Dental implants	Assess existing implants before cancer therapy to confirm stability and peri-implant health. Implant stabilisation of prostheses and obturators may be possible during cancer treatment in selected patients. Use caution when placing implants after therapy, particularly in irradiated or grafted bone (ORN risk).

Management of oral complications

ORN	There is no definitive treatment for ORN, which can significantly impair quality of life. Malignancy must be excluded before diagnosis and staging. Early pharmacological management with conservative surgery may improve outcomes. Initial management focuses on minimising oral trauma (soft diet, denture adjustment or removal), optimising oral hygiene, and providing symptomatic relief with topical or systemic analgesia. Additional measures include antioxidant medication (e.g. PENTOCLO in early disease, with limited evidence), high-dose broad-spectrum antibiotics for infection, removal of sequestra and debris, and local surgical excision where indicated. Advanced disease requires imaging (cone beam CT with chemical markers) and may necessitate radical surgery with reconstruction. Evidence is insufficient for hyperbaric oxygen therapy. Further dental extractions, particularly in the mandible, should be avoided where possible.
MRONJ	There is no effective treatment for MRONJ, and current preventive and therapeutic approaches are supported by low-quality evidence. Malignancy must be excluded before diagnosis and staging. Management includes non-surgical options (e.g. antiseptic mouth rinses, antibiotics, ozone therapy, low-level laser therapy, and platelet-rich plasma) or surgical options (e.g. sequestrectomy, debridement, resection, reconstruction, or extraction of teeth within necrotic bone). Early surgery in stage 1 and 2 disease should be considered to reduce progression and improve outcomes. Further dental extractions, particularly in the mandible, should be avoided where possible.
Viral infections	Patients receiving cancer therapy, especially chemotherapy or bone marrow transplantation, are at increased risk of viral infections despite prophylaxis (e.g. acyclovir). Herpes simplex and varicella-zoster infections may occur as primary infection or reactivation in immunocompromised patients. Suspected viral infections require urgent referral to the oncology or haematology team. Chronic

	herpes labialis requires prompt treatment; topical acyclovir can be effective.
Fungal infections	Patients receiving chemotherapy and/or radiotherapy are at increased risk of oral candidiasis and should receive antifungal treatment if infection develops. Good denture hygiene is essential. Dentures should be brushed and soaked in chlorhexidine mouthwash or dilute sodium hypochlorite. Miconazole oral gel should be applied to the fitting surface before reinsertion, unless contraindicated.
Mucositis	<p>Regular assessment of mucositis severity is essential, using the World Health Organisation (WHO) oral mucositis grading scale. Management aims to reduce severity and relieve discomfort. No standard prevention or treatment protocol exists for adults; management should be based on the best available evidence (see full guidance, section 5.17).</p> <p>CYP CYP should be closely monitored for mucositis, as they are at higher risk than adults due to increased cell turnover. Mucositis can significantly affect quality of life during cancer treatment. Treatment recommendations differ to adults. Preventative approaches include oral health education, oral cryotherapy for short infusion chemotherapies, and photobiomodulation in high-risk groups (see full guidance, section 4.9).</p>
Xerostomia	Management focuses on improving quality of life and preventing oral disease. In head and neck cancer, tissue-sparing radiotherapy (e.g. IMRT) is recommended to reduce salivary gland dysfunction. After cancer therapy, measures include topical lubricants, saliva substitutes, and sugar-free lozenges or chewing gum. Pilocarpine, cevimeline, acupuncture, or transcutaneous electrostimulation may be considered after head and neck radiotherapy. Fluoride use is recommended to reduce caries risk, and oral soft-tissue lubrication with gels or emollients (e.g. petroleum jelly-based products or Cetraben®) is advised. No single optimal management strategy exists.
Trismus	Trismus is a common complication following head and neck radiotherapy and/or surgery and requires ongoing monitoring. Clinicians should remain alert to recurrence, metastasis, or second primary malignancies. There is no clear consensus on optimal management. Exercise programmes, jaw devices, and low-level laser therapy or low-intensity ultrasound may be beneficial. Early intervention and adherence to exercises improve outcomes.

Key references

1. Delivering better oral health: an evidence-based toolkit for prevention: <https://www.gov.uk/government/publications/delivering-better-oral-health-an-evidence-based-toolkit-for-prevention>
2. West N, Chapple I, Claydon N, D’Aiuto F, Donos N, Ide M, et al. BSP implementation of European S3 - level evidence-based treatment guidelines for stage I-III periodontitis in UK clinical practice. J Dent. 2021 Mar;106:103562.