HAEMATOPOIETIC STEM CELL TRANSPLANTS



2026 DENT5311 DMD3
SPECIAL NEEDS DENTISTRY MODULE

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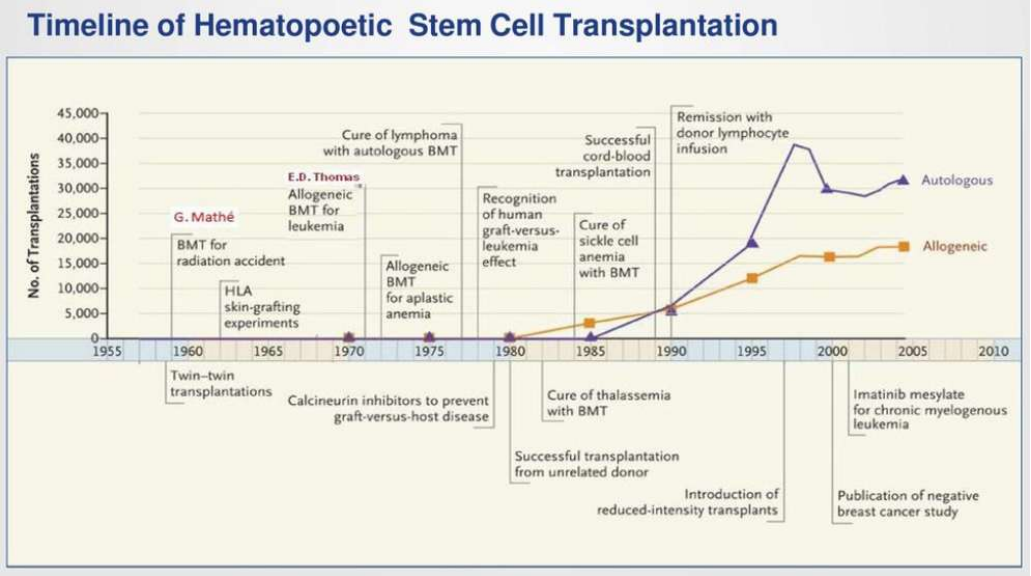
LECTURE OUTCOMES

- 1. UNDERSTAND THE TYPES OF, AND COMMON INDICATIONS FOR, HSCT/BMT
- 2. OUTLINE THE PATIENT JOURNEY TO HSCT/BMT
- 3. DESCRIBE THE ORAL COMPLICATIONS OF HSCT/BMT, AND BASIC ORAL CARE BEFORE, DURING AND AFTER TRANSPLANT
- 4. DISCUSS THE SYSTEMIC AND ORAL MANIFESTATIONS OF GRAFT VS HOST DISEASE, AND APPRECIATE ITS MANAGEMENT OPTIONS
- 5. APPRECIATE THE DENTAL WORK-UP REQUIRED PRIOR TO STEM CELL TRANSPLANT



HAEMATOPOIETIC STEM CELL TRANSPLANT

- The process of transplanting healthy blood-forming cells into an individual to replace cells that have been destroyed by disease, radiation or cytotoxic drugs



HAEMATOPOIETIC STEM CELL TRANSPLANT

Definitions & Abbreviations	
Graft	Donated organ/tissue
Host	Person who receives donor organs/tissues
Autograft	Organs/tissues that are transplanted within the same individual
Allograft	Organs/tissues that are transplanted into a different person
HSCT	Haematopoietic stem cell transplantation (PBSCT or BMT)
PBSCT	Peripheral blood stem cell transplant (stem cells harvested from peripheral circulating blood)
BMT	Bone marrow transplant (stem cells harvested from donor bone marrow)
Rejection	Host immune system mounts defence against grafted tissue leading to graft destruction
GvHD	Grafted tissue mounts an immune defence against the host cells



TYPES AND INDICATIONS

Haematopoietic stem cell transplants

TYPES OF STEM CELL TRANSPLANT

(1) source of the stem cells, (2) donor type, (3) the conditioning regimen

1) SOURCE OF STEM CELLS

Peripheral blood

- Preferred method of harvest
- Administration of G-CSF → harvest from peripheral blood circulation
- **Advantages**: superior engraftment, reduced early infection, shorter hospitalisation
- **Disadvantages**: higher incidence of GVHD and CMV infection

Bone marrow

- Aspiration of bone marrow tissue from posterior iliac crest
- **Advantages**: lower incidence GVHD, less immunosuppression
- **Disadvantages**: frequently complicated by mild back or hip pain, fatigue, transient changes in peripheral blood cell counts

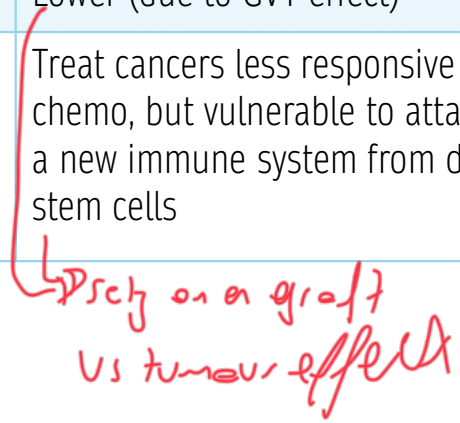
Umbilical cord blood

- Predominantly for paediatric setting (low volume of available cells)
- **Advantages**: less stringent matching required, expanded donor pool, ease of procurement, less GVHD
- **Disadvantages**: slower engraftment, increased graft failure, unavailability of donor for additional donations

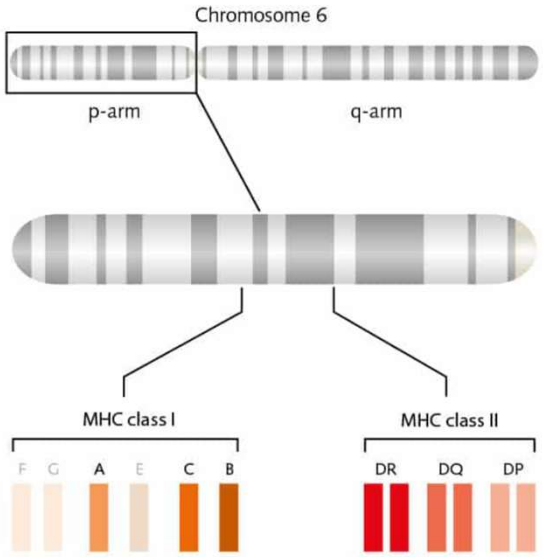
2) DONOR TYPES

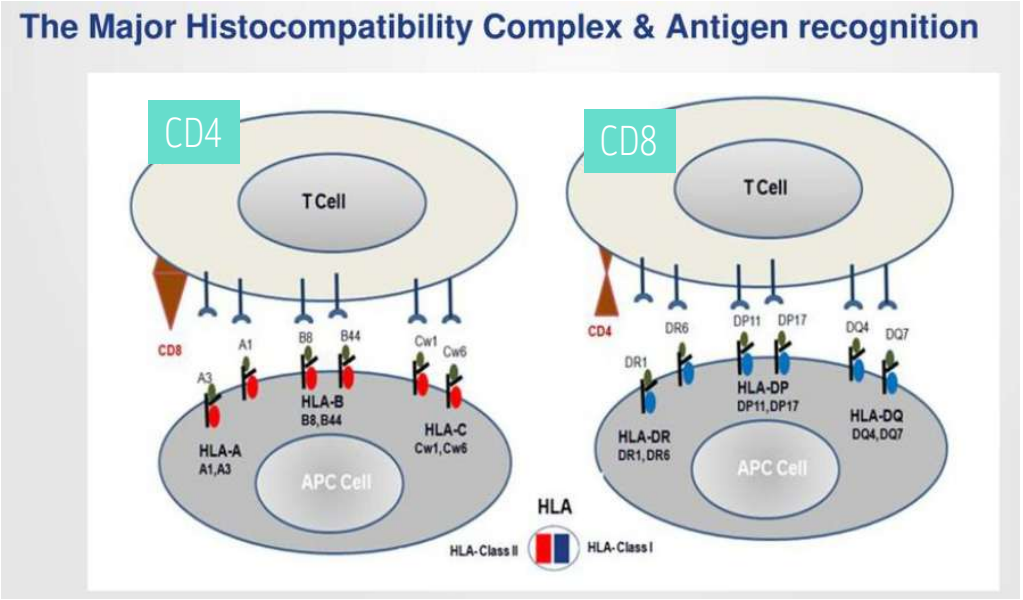
- Autologous (self)
- Allogeneic (other)
  - Matched donors
  - Haplo-identical donor
- Syngeneic (identical twin)

	Autologous	Allogeneic
Cell source	Patient's own cells	Related or unrelated donor
GVHD	Rare	High risk; donor cells may attack host
GVT effect	None	Present; donor cells attack cancer
Immune recovery	Faster (3-6 months)	Slower (12-18 months), requires immunosuppressants
Risk of relapse	Higher	Lower (due to GVT effect)
Primary goal	Prepares the body to tolerate high-dose chemo for responsive cancers	Treat cancers less responsive to chemo, but vulnerable to attack with a new immune system from donor stem cells



2) DONOR TYPES

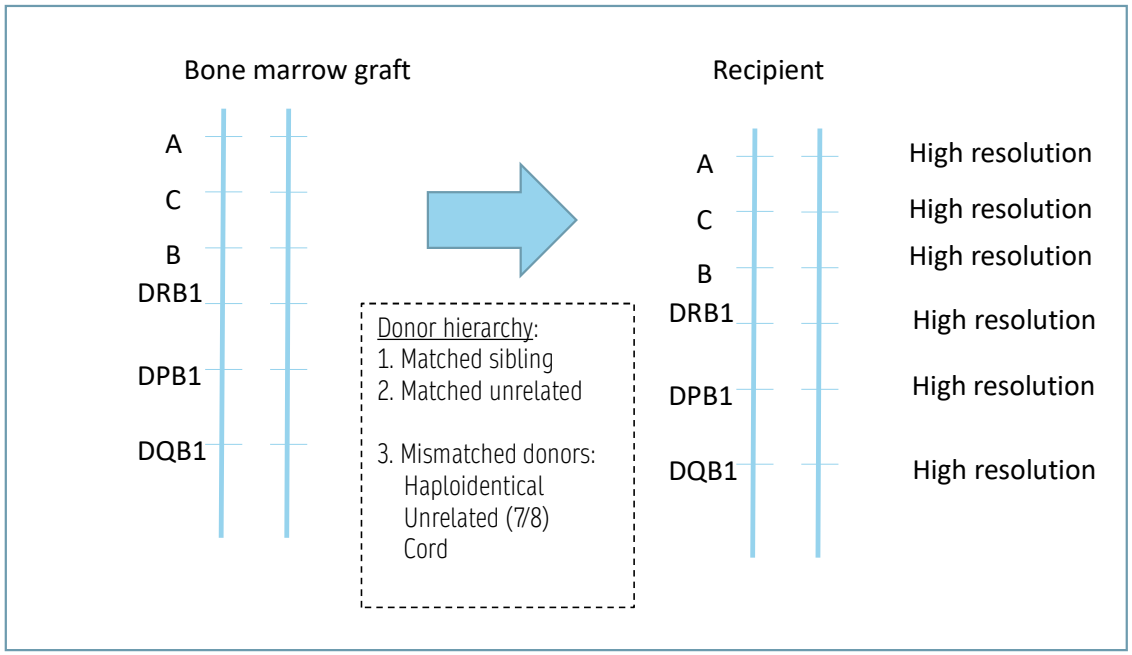




Matching = HLA complex (human leukocyte antigen) / MHC (major histocompatibility complex)

HLA MATCH – BONE MARROW STEM CELLS

- Allogeneic (other)
  - Matched donors
    - Matched related donor
    - Matched unrelated donor
  - Haplo-identical donor



3) CONDITIONING REGIMENS

- Myeloablative (MA) conditioning
  - Irreversible pancytopenia
  - Stem cell support required to rescue marrow function and prevent aplasia-related death
- Reduced intensity conditioning
  - Spectrum between MA and NMA conditioning
  - Induced cytopenia: may be prolonged requiring stem cell support, OR host-recovery possible with significant morbidity
- Non-myeloablative (NMA) conditioning
  - Minimal cytopenia, does not require stem cell support

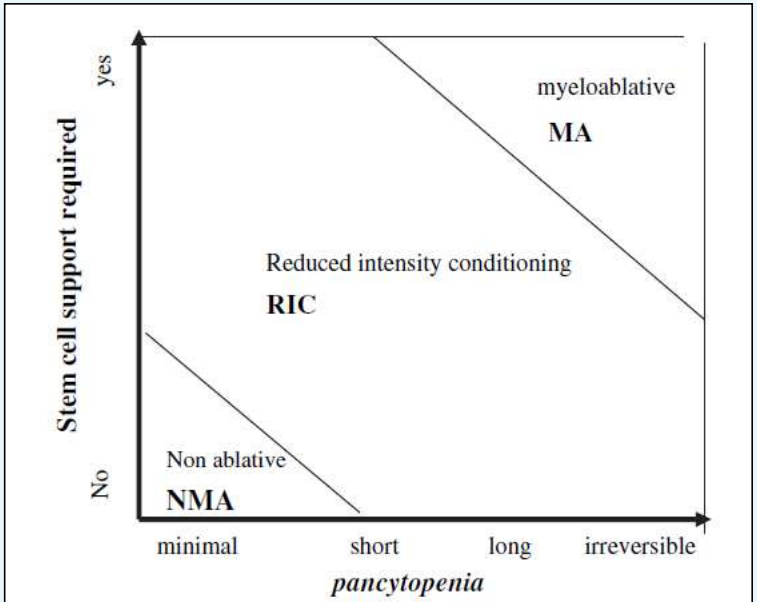


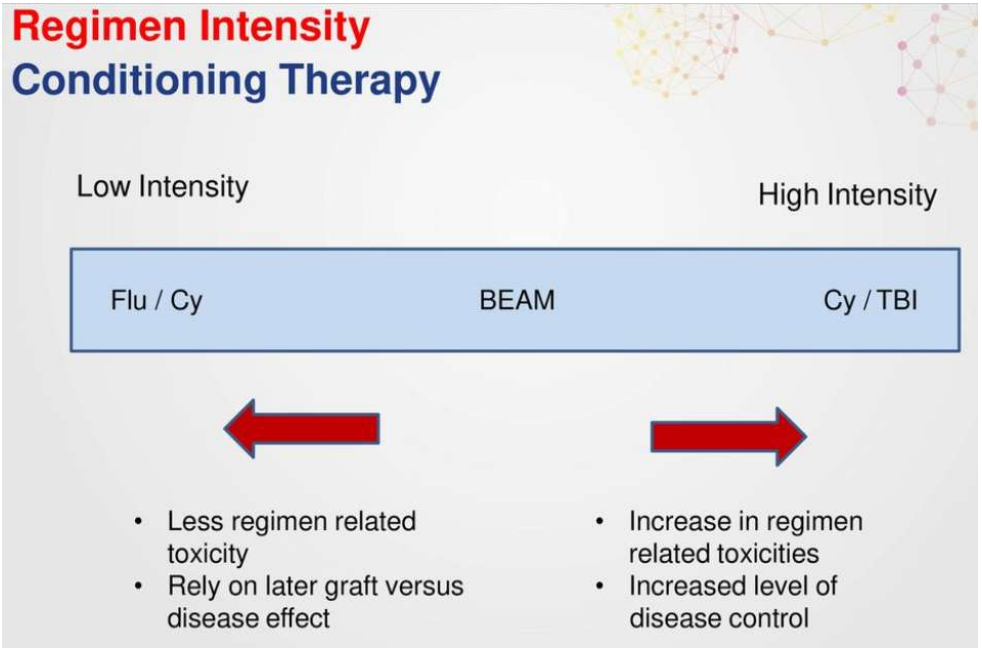
Figure 1. Classification of conditioning regimens in 3 categories, based on duration of pancytopenia and requirement for stem cell support. Myeloablative fregimens (MA) produce irreversible pancytopenia and require stem cell support. Non myeloablative regimens (NMA) produce minimal cytopenia and does not require stem cell support. Reduced intensity regimens (RIC) are regimens which can not be classified as MA nor NMA.

Bacigalupo A, et al. Defining the intensity of conditioning regimens: working definitions. Biol Blood Marrow Transplant. 2009 Dec;15(12):1628-33.

3) CONDITIONING REGIMENS

Regimen Selection

- Underlying condition
- Disease status
- Recipient co-morbidities
- Risk of rejection (graft source)



INDICATIONS FOR STEM CELL TRANSPLANT

INDICATIONS FOR STEM CELL TRANSPLANTS

- Haematological malignancy
  - ALL, CLL (usually allo)
  - Plasma cell disorders, HL, NHL (usually auto)
- Solid tumours (usually auto)
  - Neuroblastoma
  - Soft tissue / Ewing sarcoma
  - Germ cell tumours
  - Breast cancer
  - other

- Immunological Disease
  - Primary immune deficiency (usually allo)
  - Autoimmune disorders (usually auto)
- Other (usually allo)
  - Thalassemia
  - Sickle cell disease
  - Paroxysmal nocturnal haemoglobinuria
  - Inherited disorders of metabolism
  - Bone marrow failure

INDICATIONS FOR STEM CELL TRANSPLANTS

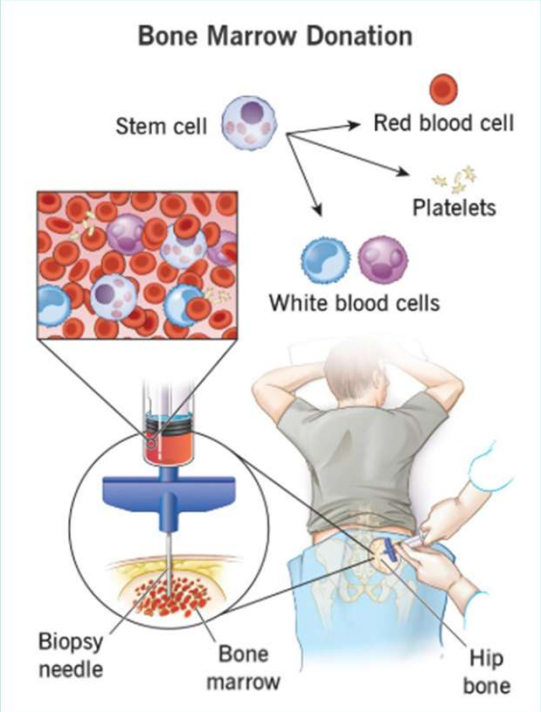
- Number of HSCT increasing over time
- Notable increase in autologous HSCT for autoimmune disease since 2009
- Western Australia allo-HSCT = 70 in 2025, 55 in 2024



PATIENT JOURNEY

Haematopoietic stem cell transplants

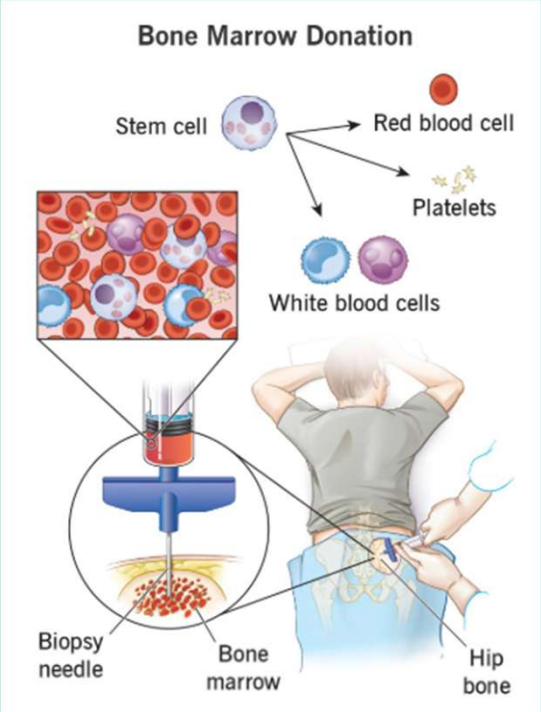
ALLOGENEIC TRANSPLANT



REFERRAL AND WORK-UP TO HSCT PROGRAM

- Diagnosis and start initial treatment (induction chemotherapy)
- Referral to HSCT program, concurrent family donor search
- Initial consult (HSCT clinic) – may be phone consult
- Donor search (family → unrelated donor)
- Presentation at HSCT MDT meeting (initial)
- Referrals / investigations
  - Echocardiogram & cardiologist review
  - Pulmonary function tests
  - **Dental review
  - Blood tests, kidney and liver function, viruses (HIV, hepatitis, CMV)
  - CT or bone scans
  - Pregnancy test

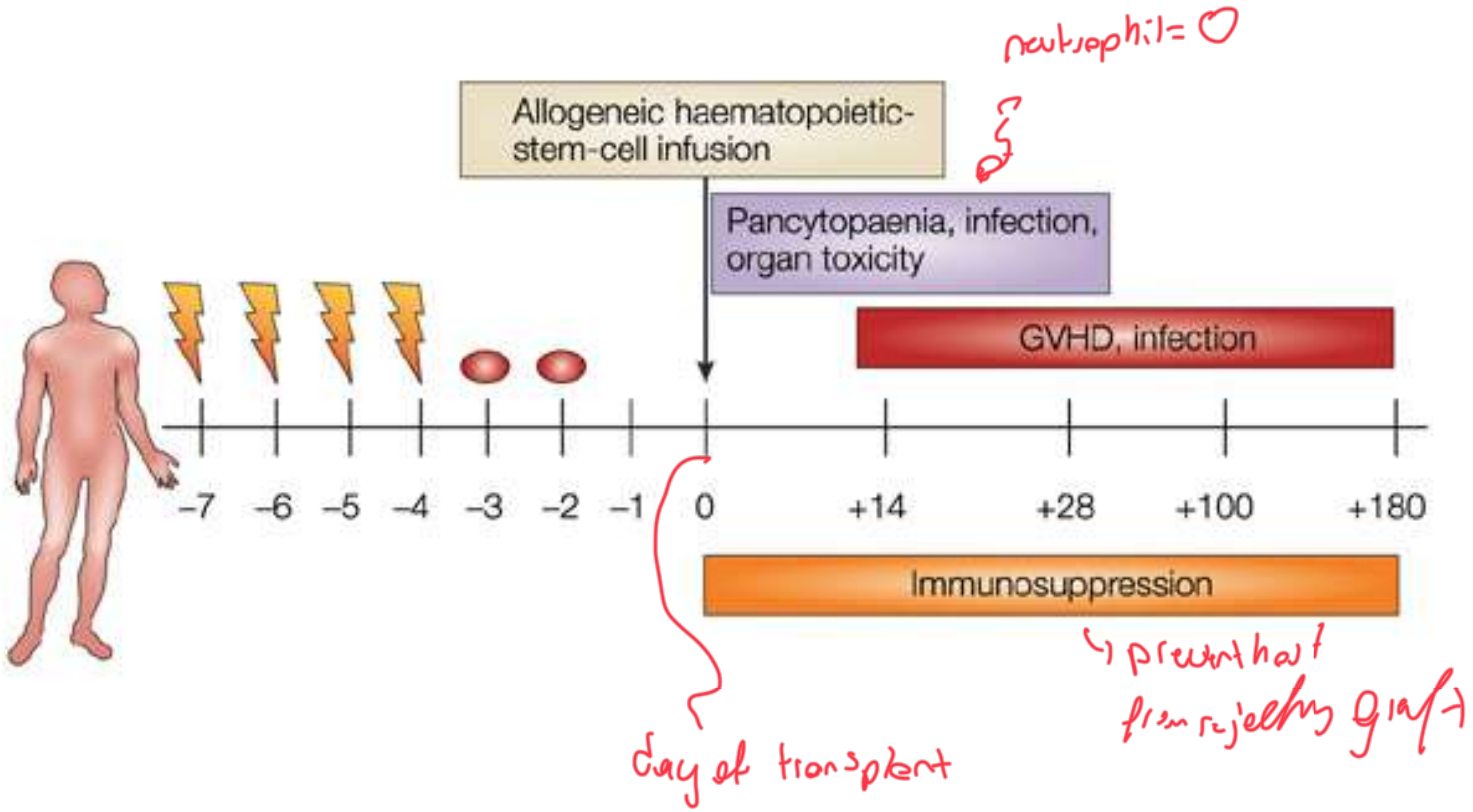
Recovery from induction chemo



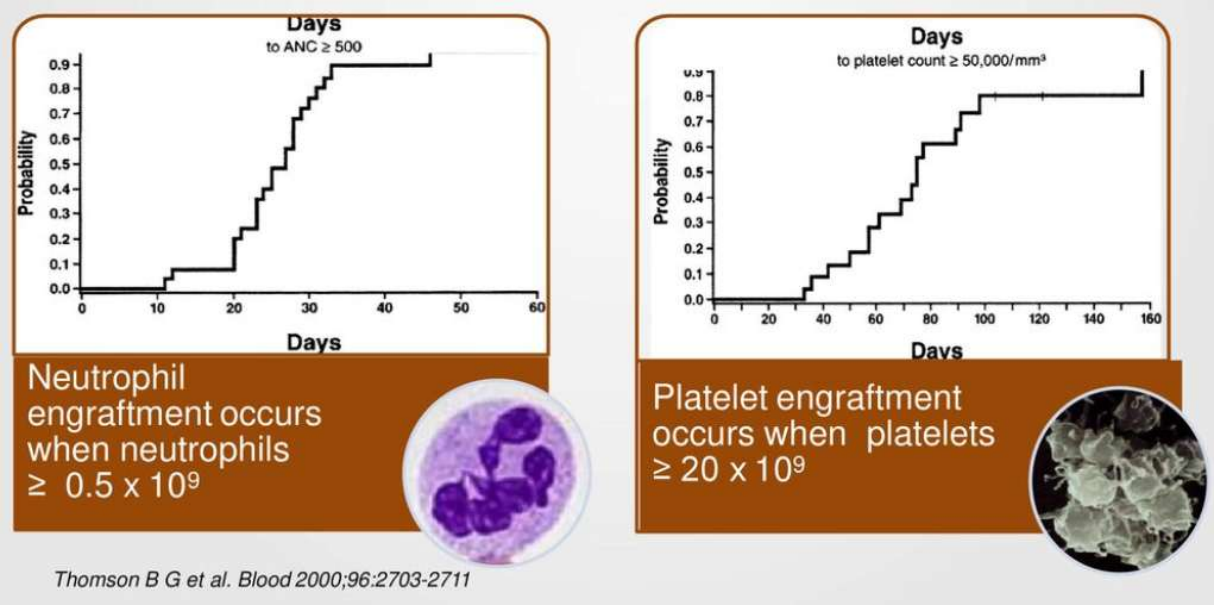
REFERRAL AND WORK-UP TO HSCT PROGRAM

- Disease re-assessment (e.g. bone marrow biopsy)
  - Remission → discharged
- Second HSCT clinic appointment – F2F
  - Discuss family search result, refer for unrelated donor search if required
- Consolidation chemotherapy cycle(s) whilst awaiting donor
- Final F2F clinic review (review of results, donor confirmation, consent)
- Presentation at HSCT MDT meting (subsequent)
- Donor available → Ward schedules admission for HSCT

ALLOGENEIC TRANSPLANT



Engraftment: blood count recovery



Allogenic Haematopoietic Stem Cell Transplantation

Allogeneic – from another person

- Sibling donor – HLA matched brother or sister
- Syngeneic – from an identical twin
- Unrelated donor – found using a donor registry
- Haploidentical – half-matched family member



Donor Apheresis

Conditioning CT



Patient





Transplantation

ENGRAFTMANT



Stage 1 Getting ready for treatment

Stage 2 Conditioning treatment

Stage 3 Collecting your donor's stem cells

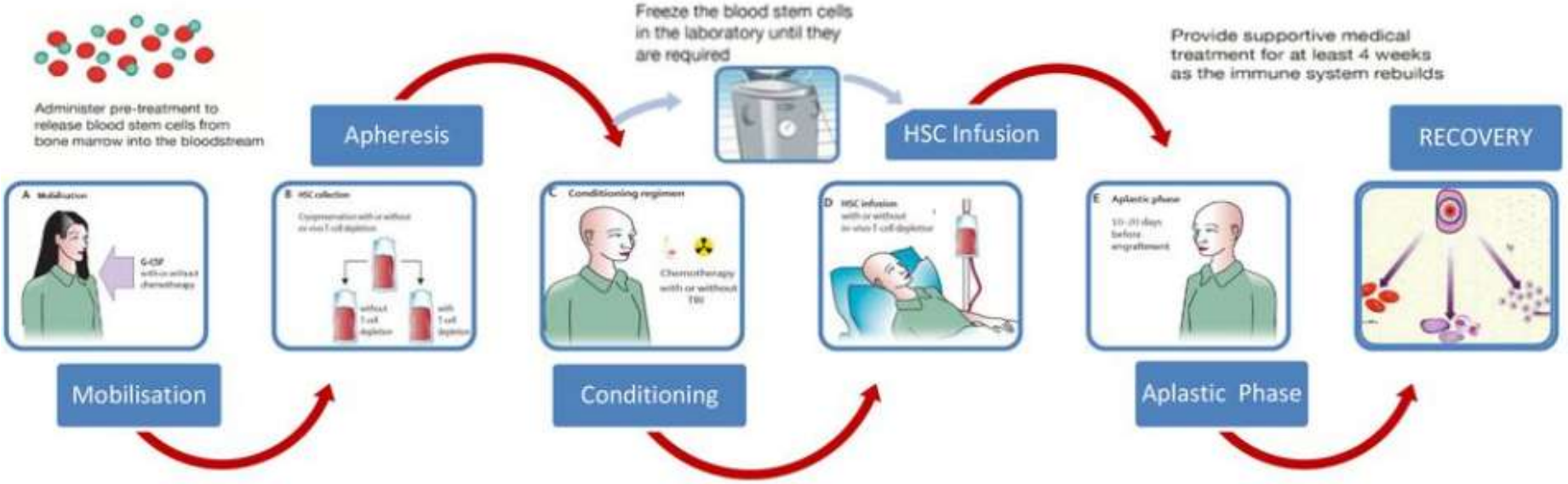
Stage 4 Having the transplant

Stage 5 Waiting for new blood cells to grow

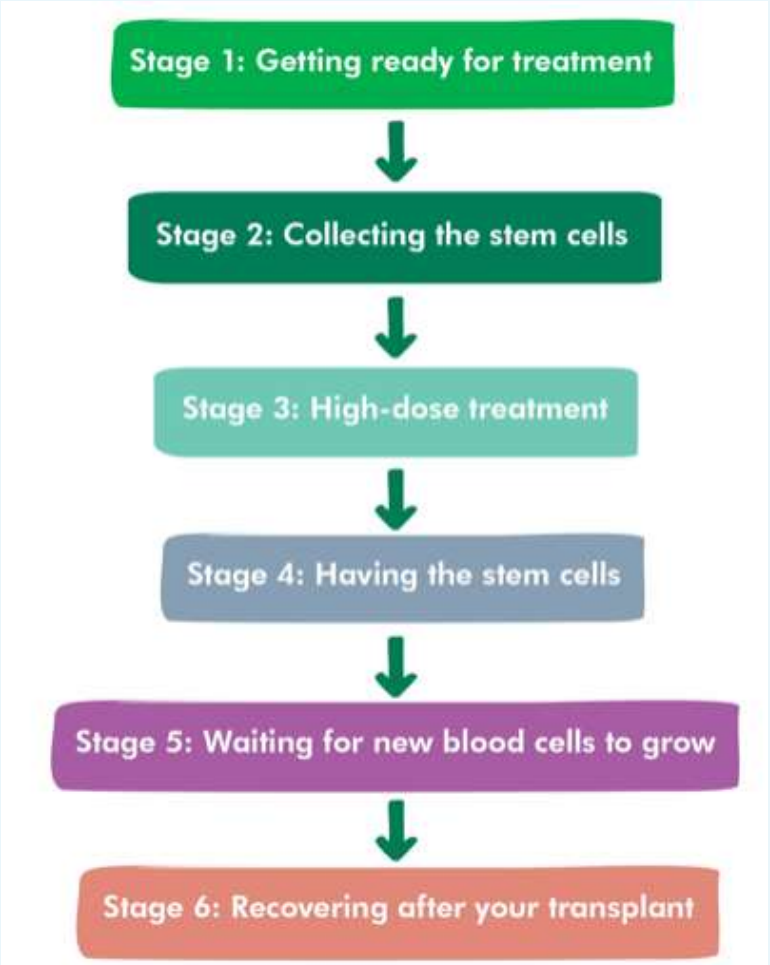
Stage 6 Recovering after your transplant

AUTOLOGOUS TRANSPLANT

Autologous Haematopoietic Stem Cell Transplantation



AUTOLOGOUS TRANSPLANT




PREVENTION OF
INFECTIONS



STRATEGIES TO REDUCE RISK

- Pre-HSCT testing
- Choice of conditioning regimen and immunosuppression
- Antibacterial and pneumocystis prophylaxis (e.g. trimethoprim-sulfamethoxazole = Bactrim®)
- Antifungal prophylaxis (e.g. fluconazole)
- Antiviral prophylaxis (e.g. valaciclovir)
- Infection control measures
- Immunisation



VACCINATIONS

- INACTIVATED VACCINES = usually commence 6-12 months post-HSCT
- LIVE VACCINES = usually commence at least 24 months post-HSCT
  - Not if active GVHD or receiving immunosuppressive agents

PROGNOSIS

MORTALITY

- Non-relapse mortality ~10-12%
  - Infection or toxicity
  - Sharpest increase in first year
- Relapse mortality ~20-25% at 2 years
- Greatest risk of death in first 4 years post-transplant: recurrence
- Other common causes of death: infection*, second cancers*, organ system dysfunction

Increased risk of transplant-related mortality:

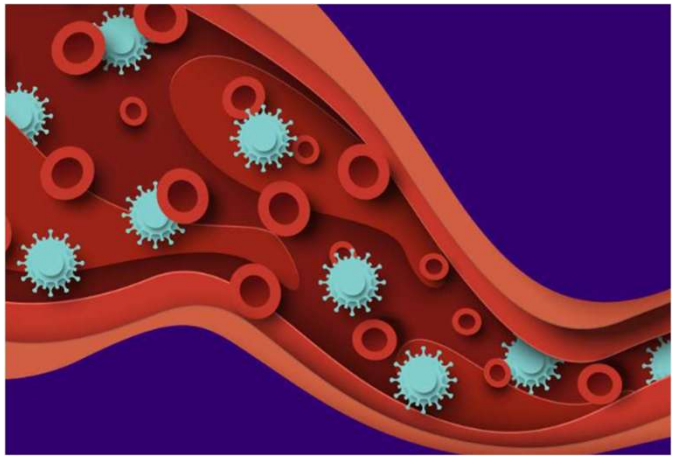
- Allogeneic transplant
- Advanced disease status at time of transplant
- Type of donor
- Intensity of conditioning regimen
- Patient age



ORAL COMPLICATIONS

Before, after, and immediately post-transplant

RISKY PATIENTS



Myelosuppression and immunosuppression:

- Disease
- Cancer therapy
- Immunosuppressive regime

ORAL COMPLICATIONS

Affect ~80% of patients

1. Damage to blood cells and immunosuppression
   - infection, bleeding and anaemia-related oral manifestations

2. Cytotoxic therapies to oral tissues
   - direct and indirect effects

Table 1 Oral complications in hematology–oncology patients and HSCT recipients

Category	Tissue	Oral complication	Early presentation	Late presentation
Tissue-specific manifestations	Mucosa	Mucositis	+	+
		Atrophy and burning, paleness (anemia)	+	
		Neutropenic ulcer	+	
		Lichenoid, erythema and ulcers (cGVHD)		+
		Pyogenic granuloma		+
	Salivary glands	Salivary gland hypofunction	+	+
		Sialadenitis	+	+
		Mucocele (cGVHD)		+
	Musculo-skeletal	Loss of elasticity, reduced range of motion and limited mouth opening (i.e. scleroderma-like manifestations) (cGVHD)		+
		Drug-induced osteonecrosis of the jaw		+
		Temporomandibular disorders		+
	Sensory disturbances	Dysgeusia	+	+
		Neuropathy		+
		Tooth hypersensitivity		+
	Teeth and gingivae	Increased dental demineralization and caries		+
		Gingival enlargement		+
		Desquamative gingivitis (cGVHD)		+
		Acute periodontal infections (symptomatic)	+	+
		Pre-existent chronic periodontal infections (asymptomatic)	+	+
Non-tissue-specific manifestations		Bleeding	+	+
		Infection—bacterial, viral, fungal	+	+
		Squamous cell carcinoma		+
		Post-transplantation lymphoproliferative disorder		+
		Developmental disturbances of teeth and craniofacial growth in pediatric patients		+

HSCT hematopoietic stem cell transplantation, *cGVHD* chronic graft versus host disease

ACUTE SIDE EFFECTS
(OF RELEVANCE TO DENTISTRY)

- SUSCEPTIBILITY TO INFECTION (including oral)
  - Flare of chronic infection (e.g. odontogenic, periodontal)
  - Reactivation (e.g. oral herpes simplex virus)
  - Opportunistic (e.g. oral candidiasis)
  - Systemic (immunocompromised + mucositis)
- ORAL & GASTROINTESTINAL MUCOSITIS
  - Implications: pain, infection, nutrition, speech, ability for oral care

- CYTOPENIAS
  - Thrombocytopenia = bleeding risk
  - Neutropenia / leukopenia = infection risk
  - Anaemia
- DISSEMINATED INTRAVASCULAR COAGULATION
  - Anticoagulant prophylaxis
- TASTE ALTERATIONS
- ACUTE GRAFT-VS-HOST DISEASE (allo only)

CHRONIC SIDE EFFECTS
(OF RELEVANCE TO DENTISTRY)

- IMMUNOSUPPRESSION (allo only)
  - Ongoing infection risk
  - Risk of secondary malignancy – heightened at cGVHD sites
- HYPOSALIVATION (and associated sequelae)
  - Chemo damage, polypharmacy, cGVHD

- OSTEOPOROSIS RISK
  - Bone-altering medications
- CHRONIC GVHD (allo only)

Figure 8. Oral candidiasis in patients with oral cGVHD. (A) Florid pseudomembranous candidiasis in a patient using intensive topical clobetasol solution rinses. (B) Thick, plaque-like confluent pseudomembranous candidiasis in a patient using combined clobetasol and tacrolimus solutions. (C) Erythematous candidiasis in a patient with severe cGVHD-associated salivary gland hypofunction and a full maxillary denture. (D) Typical patchy pseudomembranous candidiasis of the palate in a patient rinsing with dexamethasone solution.

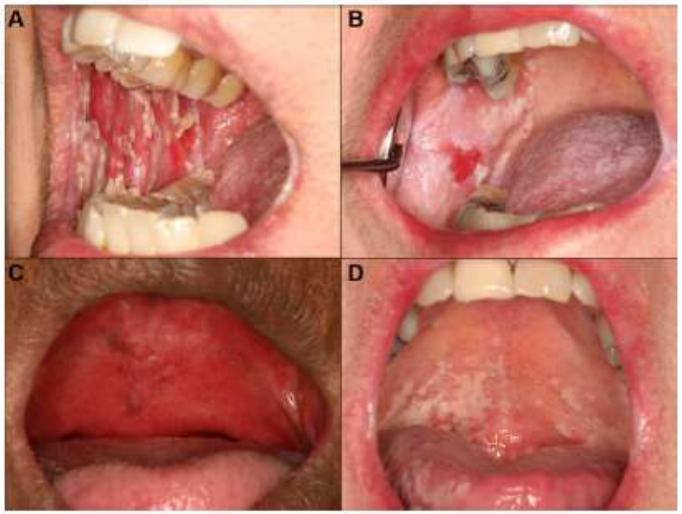
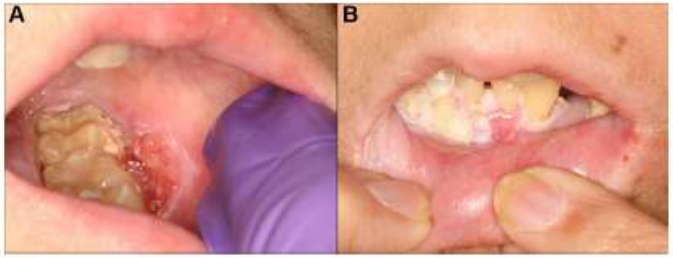


Figure 12. Squamous cell carcinoma of the left posterior buccal vestibule in a 14-year-old girl that was 6 years after transplantation, with a prior history of severe mucosal cGVHD. (A) Ulcerated, exophytic, and indurated lesion of the vestibule that was treated with wide excision and chemoradiation therapy. (B) Localized recurrence that was evident within weeks of completion of therapy.



CHRONIC SIDE EFFECTS

GRAFT VS HOST DISEASE

GRAFT VS HOST DISEASE

"Caused by reaction of the donor-derived immunocompetent cells against the recipient's tissues"

Immune cells in the donated tissue (graft) identify the recipient (host) tissues as 'foreign', mounting an immune response to 'reject' the host's cells

Tissue damage is caused by the proliferation of donor T cells and release of inflammatory cytokines

GRAFT VS HOST DISEASE

Severity depends on:

- Degree of histocompatibility matching
- Number of donor T-cells infused
- Use of immunosuppressant medication
- Conditioning regimen

ACUTE VS CHRONIC GVHD

- Previously designated purely based on the time frame of occurrence:
  - Acute had its onset <100 days after transplant
  - Chronic commenced or persisted >100 days after transplant

- Now recognised that they have distinct clinical and pathologic features. 4 subclassifications:
  - Classic acute (<100 days; only acute features)
  - Persistent/recurrent/late onset acute (>100 days; only acute features)
  - Classic chronic (>100 days; only chronic features)
  - Overlap syndrome (present at any time post transplant; mixed acute/chronic features)

FEATURES OF ACUTE GVHD

Acute GvHD

- Principal target organs = skin, GIT, liver
- Skin: usually first and most common site:
  - Maculopapular rash
  - May develop into bullous lesions with toxic epidermal necrolysis
- GIT: diarrhoea, abdominal pain, nausea, vomiting, anorexia, oral mucosal involvement
- Liver: elevated LFTs, elevated cholesterol, painful hepatomegaly, dark urine, pale stool, fluid retention, pruritus
- Less commonly involved organ systems: haematopoietic system, eyes, kidneys, and lung





FEATURES OF CHRONIC GVHD

Chronic GvHD

- Immunoregulatory disorder with features of both autoimmunity and immunodeficiency; can affect any organ
- Clinical manifestations resemble autoimmune collagen vascular diseases
- ~50% of allo-HSCT patients surviving >1yr develop cGVHD

- **Oral mucosa** is the most commonly involved site
- Two main **cutaneous forms**:
  - Lichenoid – predominates in early cGvHD; generally affects peri-orbital skin, ears, palms, soles, genital mucosa
  - Sclerodermatous – inflammatory skin plaques (esp on the extremities) are replaced by areas of fibrosis, causing dimpling and contracture; skin of trunk can contract causing secondary restrictive lung disease

- Other organ systems: eyes (60%), GIT (dysmotility, pseudo-obstruction, dysphagia, oesophageal ulceration/fibrosis/webbing/stricture); lungs; liver

ACUTE VS CHRONIC GVHD

	Acute GVHD	Chronic GVHD
Pathophysiology	Apoptosis and necrosis of cells	Inflammatory and fibrotic process reminiscent of autoimmune disease
Organs affected	Skin, GIT, liver	Skin, GIT, eyes, lungs, female genital tract, liver
Oral involvement	Similar to oral mucositis	Mucosal changes, salivary gland dysfunction, sclerosis (trismus)

ORAL CHRONIC GVHD

- Reported to occur in 45-83% of patients with cGvHD (Imanguli, 2008)
- Classic manifestations: (mimic immune-mediated conditions)
  - **Lichenoid changes, mucosal atrophy and ulceration** – resembles oral lichen planus
  - **Salivary gland dysfunction** – salivary gland infiltrates resemble Sjögren's syndrome
  - **Trismus** – resembles scleroderma

(Treister, 2012)

Oral mucosal cGVHD		Salivary gland cGVHD		Sclerotic cGVHD	
Signs	**Symptoms**	**Signs**	**Symptoms**	**Signs**	**Symptoms**
• Lichen-type features* • Hyperkeratotic plaques* • Erythema/atrophy† • Ulcerations with pseudomembranes† • Atrophic glossitis • Superficial mucoceles†	• Sensitivity to foods/drinks - Spicy/seasoned foods - Acidic foods (citrus, salad dressing, carbonated drinks) - Alcoholic beverages and alcohol containing mouth rinses - Salty foods - Hard/crunchy/crusty foods - Warm (temperature) foods/drinks • Sensitivity to mint-flavored toothpaste/brushing • Taste changes	• Thickened, sticky, ropey or foamy saliva • Lack of saliva/absence of floor of mouth pooling • Atrophic mucosa • Dental caries (interproximal and at the cervical margins) • Oropharyngeal candidiasis • Frequent water sipping • Tongue "clicking" while speaking • Food debris inside the mouth • Inability to eat dry foods without fluids	• Xerostomia† • Sensitivity to foods/drinks • Difficulty speaking • Difficulty chewing • Difficulty swallowing/throat constriction • Waking at night because of severe dryness • Taste changes	• Restriction of mouth opening from sclerosis* • Leathery skin • Mucosal bands	• Difficulty eating • Jaw pain • Tightness

*Consensus criteria diagnostic features.
†Distinctive (supportive but nondiagnostic) features.

MUCOSAL CHANGES IN ORAL CGVHD

- Most common on buccal/labial mucosae and tongue, but can affect any site
- Commonly presents as white striations or plaques, erythema, atrophy, and/or ulceration
- May be asymptomatic, uncomfortable, or painful; may limit oral intake
- Prominent buccal reticular changes → sensation of mouth tightness or trismus







Oral mucosa most commonly involved site

Immediate post transplant period → Erythema of the mouth → Ulcers

SALIVARY CHANGES IN ORAL CGVHD

Changes may include chronic salivary gland inflammation, formation of mucoceles and duct blockage, reduced volume of saliva and increased viscosity

Extensive salivary gland involvement can result in total destruction of acinar units, leading to permanent and profound hyposalivation

Both qualitative and qualitative changes are observed



Figure 6. Salivary gland cGVHD with desiccated appearing palatal mucosa secondary to severe salivary gland hypofunction.



Figure 7. Rampant cervical dental caries affecting all of the teeth in a patient with cGVHD of the salivary glands. Demineralization changes (arrow) appear chalky white.



Figure 9. Multiple superficial mucoceles of the palate.

SCLEROTIC/FIBROTIC CHANGES IN ORAL CGVHD

Signs & symptoms include: trismus, pain, secondary ulceration, impaired oral hygiene

Can be primarily cutaneous or primarily mucosal:

- Cutaneous: perioral and facial skin sclerosis
- Mucosal: chronic mucosal inflammation → fibrosis

Secondary periodontal recession may result → dental sensitivity



Figure 10. Orofacial sclerotic cGVHD. (A) Fibrous band formation of the right buccal mucosa secondary to long-standing mucosal cGVHD, with limited opening and secondary gingival injury because of tightness. (B) Generalized skin and myofascial fibrosis with intense and painful secondary myospasms and limited opening.

ORAL SCC AS A COMPLICATION OF CGVHD

- Allogenic SCT survivors face a significant risk of secondary malignancy:
  - 2-6% develop a secondary solid malignancy at 10 years
  - 1/6 are SCCs of the oral cavity
- Risk factors: male, Fanconi anaemia, more extensive cGvHD, advanced age at time of transplant, TBI
- Unclear whetehr due to the cGvHD itself or prolonged immunosuppression
- Mucosal surveillance required

MANAGEMENT OF ORAL CGVHD

Medical Management

- Systemic management
- Topical immunomodulatory therapy:
  - Topical corticosteroids (gels, ointments, rinses, puffers)
  - Cyclosporin rinse or paste
  - Tacrolimus and pimecrolimus (calcineurin inhibitors)

Sclerosis Management

- Physical therapy – low load passive stretching
- Intralesional steroid therapy
- Surgery to disrupt mucosal bands or strictures in focal areas

Dental Considerations

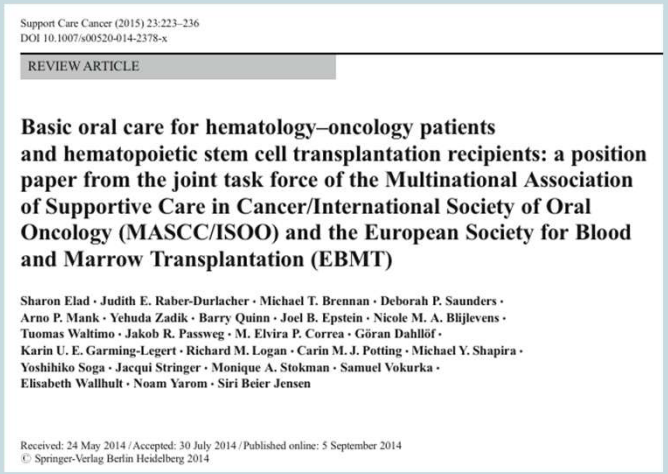
- Caries prevention (tailored)
- Minimise oral trauma and irritation
  - Well-fitting dentures
  - Smoothing of sharp teeth/fillings
  - Avoidance of SLS, ETOH mouthwash
  - Avoidance of dietary irritants
- Mucosal surveillance & biopsy as indicated
- Symptom palliation
  - Topical analgesics
  - Mucosal lubricants
  - Sialagogues (avoid: pulmonary or gastrointestinal GvHD, significant comorbidities)
- Smoking cessation counselling; moderation of alcohol consumption



BASIC ORAL CARE

Haematopoietic stem cell and bone marrow transplants

BASIC ORAL CARE GUIDELINES



Support Care Cancer (2015) 23:223–236
DOI 10.1007/s00520-014-2378-x

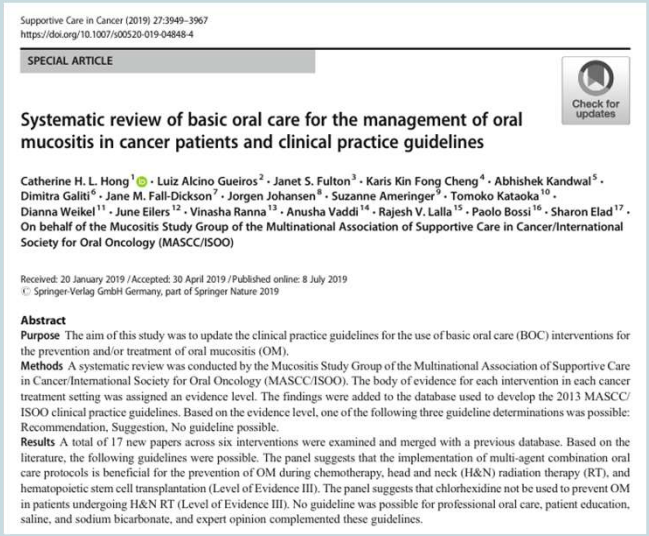
REVIEW ARTICLE

Basic oral care for hematology–oncology patients and hematopoietic stem cell transplantation recipients: a position paper from the joint task force of the Multinational Association of Supportive Care in Cancer/International Society of Oral Oncology (MASCC/ISOO) and the European Society for Blood and Marrow Transplantation (EBMT)

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SPECIAL ARTICLE

Check for updates

Systematic review of basic oral care for the management of oral mucositis in cancer patients and clinical practice guidelines

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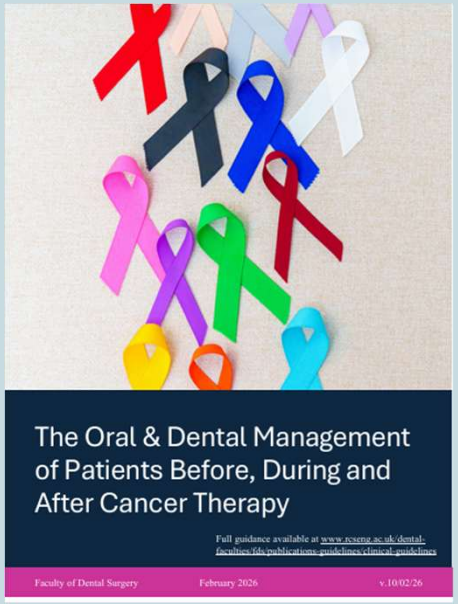
Abstract

Purpose The aim of this study was to update the clinical practice guidelines for the use of basic oral care (BOC) interventions for the prevention and/or treatment of oral mucositis (OM).

Methods A systematic review was conducted by the Mucositis Study Group of the Multinational Association of Supportive Care in Cancer/International Society for Oral Oncology (MASCC/ISOO). The body of evidence for each intervention in each cancer treatment setting was assigned an evidence level. The findings were added to the database used to develop the 2013 MASCC/ISOO clinical practice guidelines. Based on the evidence level, one of the following three guideline determinations was possible: Recommendation, Suggestion, No guideline possible.

Results A total of 17 new papers across six interventions were examined and merged with a previous database. Based on the literature, the following guidelines were possible. The panel suggests that the implementation of multi-agent combination oral care protocols is beneficial for the prevention of OM during chemotherapy, head and neck (H&N) radiation therapy (RT), and hematopoietic stem cell transplantation (Level of Evidence III). The panel suggests that chlorhexidine not be used to prevent OM in patients undergoing H&N RT (Level of Evidence III). No guideline was possible for professional oral care, patient education, saline, and sodium bicarbonate, and expert opinion complemented these guidelines.

MASCC/ISOO Oral Mucositis 2019



RCS England Cancer Therapy Oral Management 2026

BASIC ORAL CARE



- “the activities that should be part of the patient’s routine care during periods of cancer treatment in order to maintain good oral health and reduce the risk for local inflammation and infection, as well as systemic infection originating from the oral cavity”

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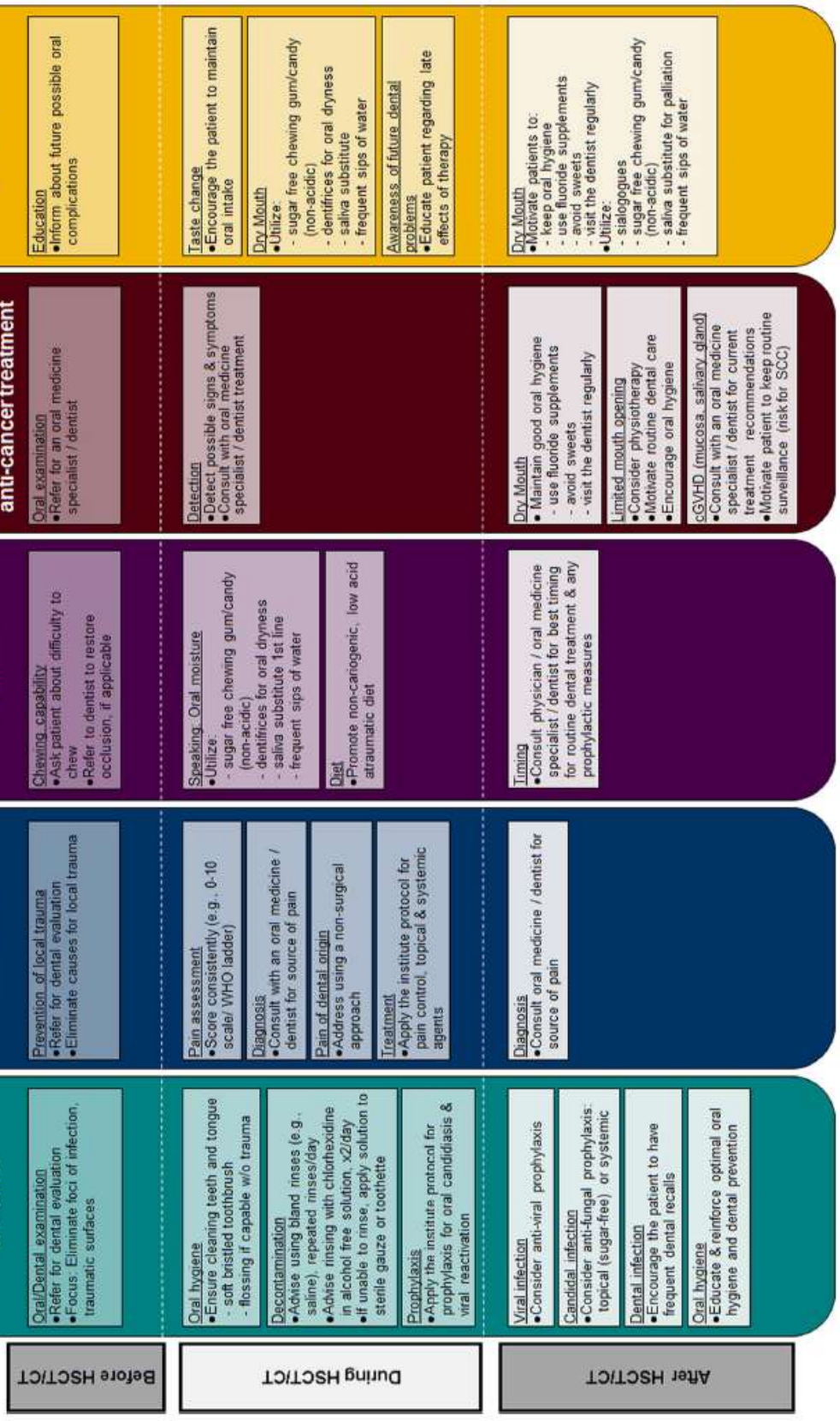


Fig. 1 *HSCT* haematopoietic stem cells transplantation, *CT* chemotherapy, *WHO* world health organization, *cGVHD* chronic graft versus host disease, *SCC* squamous cell carcinoma

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PREVENTION OF INFECTION

Before HSCT

- Oral/dental examination: Eliminate foci of infection, trauma ASAP to allow time for treatment and healing (ideally 2 weeks)

During HSCT

- IF oral hygiene compromised, add CHX as an oral antiseptic
- Brushing should be continued 2-3 times daily with ultra-soft or soft toothbrush, bristles softened in hot water
- Brushing with sponge brushes is optional, but less effective in removing plaque (though addition of CHX increases effectiveness)
- Air-dry toothbrush between uses
- Toothbrush replaced regularly (e.g. after each neutropenic cycle)
- *Measures to remove plaque from between teeth, C&Bs or implants, and from tongue, should be continued using familiar devices to pt to avoid self-injury

After HSCT

- May need to avoid invasive dental treatment
- *Aerosol-generating procedures (e.g. S/C with u/s scaler) should be minimised if immunosuppressed
- *Immune reconstitution may take months after HSCT (even when haematological status is apparently normal)



DENTAL WORK-UP PRIOR TO TRANSPLANT

Haematopoietic stem cell and bone marrow transplants

ORAL FOCI OF INFECTION OF CONCERN PRIOR TO URGENT MEDICAL TREATMENT

Table 1 Potential foci of infection and local trauma/bleeding factors within the stomatognathic system in patients undergoing HCT [12, 15–23]

Focus of infection	Advanced caries	-Cavities in which excavation may lead to pulpal exposure, -Cavities that can harbor fungal organisms, -Unrestorable carious teeth, -Compromised, large restorations
	Moderate/advanced gingivitis and periodontitis	- Furcation involvement greater than II grade, -Advanced tooth mobility, -Periodontal pockets ≥6 mm, -Advanced recession (loss of two-third bone support)
	Dental-pulp/periapical pathology	-Nonvital/inflamed dental pulp, -Chronic/acute periapical pathology
	Others	-Pericoronitis, -Sub, supra-gingival calculus, -Partially erupted teeth, -Root tips (not fully covered by bone or showing radiolucency), -Cysts, -Mucosal lesions, -Leaking crowns and fillings
Local bleeding factors		-Fractured teeth and/or restorations, -Sharp edges of teeth and/or restorations, -Ill-fitting dentures, -Orthodontic appliances, -Teeth contacting directly to the opposing mucosa

Boguslawska-Kapala et al. Oral health of adult patients undergoing hematopoietic cell transplantation. Pre-transplant assessment and care. 2017:96;1135-1145.

focus on acute needs & contemporary sources of bleeding & pain (watch & wait) intervention only

WHEN TIME OR SYSTEMIC CONDITIONS ARE AGAINST YOU…

Table 2 Descriptions of complete, partial and minimal dental evaluation/treatment protocols by dental pathology

Protocol Type Dental Pathology	Complete [19–21]	Partial [24–27]	Minimal/incomplete dental evaluation and/or treatment protocols/not cleared [16, 18]
Caries	Restore all teeth	Mild/ moderate caries were restored if time permitted; otherwise these lesions were left alone and observed.	Intervention only if symptomatic
Severe Caries/ Pulp involvement/Dental abscess	Root canal treatment OR Extract		
Apical periodontitis	• Retreat • Apicoectomy • Extract	• Symptomatic lesions and lesions ≥5 mm were treated • Asymptomatic lesions and lesions <5 mm were observed	
Advanced periodontal disease	Extract teeth with • probing depth ≥ 6 mm • furcation I, II, III	Extract teeth with • probing depth ≥ 8 mm • mobility III • severe inflammation	
Mobile primary teeth	Extract teeth with >50% root resorption	Extract teeth with severe mobility and expected to exfoliate within a few weeks.	
Partially erupted third molars	Extract	• Asymptomatic teeth were observed • Partially erupted third molars with purulence of pericoronitis were extracted.	

Hong et al. A systematic review of dental disease management in cancer patients. Support Care Cancer. 2018;26:155-174.



THANK YOU

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