Antiemetic Guidelines for Adult Patients Receiving Systemic Anti-Cancer Treatment and Radiotherapy

Guidance

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Applies to	All adult patients receiving SACT	**Exclusions**	Paediatrics

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EMETIC RISK GROUP	ANTIEMETICS
High Non-AC	5-HT_3 + DEX + NK_1 +/- OLZ*
High AC	5-HT_3 + DEX + NK_1 +/- OLZ*
Carboplatin	5-HT_3 + DEX + NK_1
Moderate (other than carboplatin)	5-HT_3 + DEX
Low	5-HT_3 or DEX or DOP
Minimal	No routine prophylaxis

5-HT_3 = serotonin$_3$ receptor antagonist	**DEX** = DEXAMETHASONE	**NK_1** = neurokinin$_1$ receptor antagonist such as APREPITANT or FOSAPREPITANT or ROLAPITANT or NEPA (combination of netupitant and palonosetron)	**OLZ** = OLANZAPINE	**DOP** = dopamine receptor antagonist

1.2 ASCO/MASCC Guidance Summary – DELAYED Nausea & Vomiting Summary

EMETIC RISK GROUP	ANTIEMETICS
High Non-AC	DEX or (if APR 125mg for acute: (MCP + DEX) or (APR + DEX)) +/- OLZ*
High AC	NONE or (if APR 125mg for acute: DEX or APR) +/- OLZ*
Carboplatin	NONE or (if APR 125mg for acute: APR)
Oxaliplatin, or anthracycline, or cyclophosphamide	DEX can be considered
Moderate (other)	No routine prophylaxis
Low and Minimal	No routine prophylaxis

DEX = DEXAMETHASONE	**MCP** = METOCLOPRAMIDE	**APR** = APREPITANT	**OLZ** = OLANZAPINE

2.0 INTRODUCTION

2.1 The purpose of this document is to provide guidance on the rational for use of anti-emetics for prevention and treatment of SACT and radiotherapy-induced nausea and vomiting in adult patients. They are not intended to address nausea and vomiting in palliative care. These guidelines are intended to provide a framework to support clinical practice. They cannot cover every clinical situation and clinicians will need to exercise their expert clinical judgement when approaching the management of individual patients.

2.2 This guidance is intended for patients receiving systemic anti-cancer treatment (SACT) and radiotherapy at Somerset NHS Foundation Trust.

2.3 Within this document the term SACT is used to refer to all drugs with direct anti-tumour activity. This includes conventional chemotherapy, targeted treatments, monoclonal antibodies and immunotherapy. In addition, the guidelines have been updated to incorporate recommendations regarding the use of Checkpoint Inhibitors (CPIs) when given alongside conventional SACT.

2.4 Systemic anti-cancer treatment (SACT) induced nausea and vomiting is one of the most frequent side effects experienced by patients undergoing SACT. Patients often find SACT induced nausea and vomiting distressing, and anxiety about the recurrence of such symptoms on future cycles of SACT may itself become a cause. Modern drug treatment will successfully control SACT induced nausea and vomiting for the majority of patients.

2.5 As for SACT induced nausea and vomiting, the goal of antiemetic therapy for patients undergoing radiation treatment is to prevent or minimise the severity and duration of nausea and vomiting. The risk of radiation-induced emesis varies with the treatment administered.

2.6 The guidance was prepared by reviewing published guidelines on the subject. It should be noted that the definitions for low, moderate, high and very high differ from ASCO, MASCC and NCCN guidance. This is deliberate as the definition of "moderate" in these sources is 30-90% which will encompass most of the SACT regimens and therefore it will make it difficult to discern between such treatments.

2.7 These guidelines are intended to support clinicians when deciding on appropriate antiemetics and electronic ePrescribing systems such as Mosaiq™ will be updated in-line with guidance according to clinical need.

3.0 DEFINITIONS

3.1 Systemic anti-cancer treatment (SACT) is a collective term used to describe the growing number of differing systemic therapies used to provide cure, disease control and palliation in cancer. These include conventional chemotherapy, targeted treatments, monoclonal antibodies and immunotherapy.

3.2 Radiotherapy involves giving high-energy x-rays to destroy cancer cells in a specific area. Some normal cells in the area can also be damaged by radiotherapy, which can cause side effects. Radiotherapy is a local, rather than systemic treatment. Types of radiotherapy include external beam, brachytherapy, SABR and stereotactic radiosurgery.

3.3 Definitions of nausea and vomiting:

Acute	N&V experienced during the first 24-hour period immediately after SACT administration.
Delayed	N&V that occurs more than 24 hours after SACT and may continue for up to 6 or 7 days after SACT.
Anticipatory	N&V that occurs prior to the beginning of a new cycle of SACT. It is either a learned response following SACT induced nausea and vomiting on a previous cycle or an anxiety response. It is most common after 3 to 4 cycles of SACT where acute or delayed symptoms have been poorly controlled.
Breakthrough	Development of N&V, despite standard antiemetic therapy, which require treatment with an additional pharmacological agent.
Refractory	N&V which persists despite treatment with both standard and rescue therapy.

3.4 Grading of nausea and vomiting:

	Grade 1	**Grade 2**	**Grade 3**	**Grade 4**	**Grade 5**
Nausea	Nausea Loss of appetite without alteration in eating habits.	Oral intake decreased without significant weight loss, dehydration or malnutrition; IV fluids indicated for less than 24hrs	Inadequate oral caloric or fluid intake; IV fluids, tube feeding or IVN indicated for ≥24 hrs	Life-threatening consequences	Death
Vomiting	1 episode in 24 hrs	2-5 episodes in 24 hrs; IV fluids indicated for less than 24hrs	≥6 episodes in 24 hrs; IV fluids or IVN indicated for ≥ 24 hrs	Life-threatening consequences	Death

4.0 ROLES and RESPONSIBILITIES.

Role	**Responsibility**
HCS Lead for Chemotherapy	To ensure this protocol reflects safe practice for patients and is implemented correctly.
Cytotoxic Pharmacy Group	Responsible for reviewing this protocol and ensuring appropriate dissemination
Lead Cancer Services Pharmacist	Responsible for reviewing this protocol and ensuring it reflects safe practice.
Lead Chemotherapy Nurse	Responsible for ensuring this protocol is available on the Trust Intranet and reviewed regularly.
Ward Managers and Clinical Service Leads	Responsible for ensuring that nursing/medical staff are aware of this protocol and adhere to it appropriately
Acute Haemato-Oncology Team	Ensure that all trained nurses within the HCS Directorate have an awareness and understanding of this protocol for the purpose of triage telephone calls.
Trained nurses taking telephone triage calls	Responsibility to refer to the protocol and document accurately any action taken on MOSAIQ and on the Oncology/Haematology 24 hour helpline triage form.
Lead for Teaching and Training Junior Doctors	Responsible for ensuring doctors reviewing patients receiving SACT are aware of this protocol
Clinicians undertaking SACT pre-assessment clinics	To ensure that guidelines within this protocol are followed

5.0 PROCESS DESCRIPTION

5.1 General antiemetic recommendations for SACT and radiotherapy:

- Always commence antiemetics before SACT.
- Give oral doses at least 30 minutes before SACT commences.
- Antiemetics are best given regularly; not prn, and courses should be completed.
- Optimal emetic control in the acute phase is essential to prevent nausea and vomiting in the delayed phase.
- Where indicated, Dexamethasone/Prednisolone should be given prophylactically, and not as a treatment for emesis.
- Dexamethasone/Prednisolone should be given no later than 2pm to minimise wakefulness in the night.
- Consider initiating Domperidone on the evening of SACT.
- Patients should always be provided with counselling on how to take their antiemetic medication as well as printed material conveying the same information.
- See ***Appendix A*** for action of antiemetics on main receptor sites and further antiemetic information.

5.2 SACT induced nausea and vomiting:

5.2.1 Choice of antiemetics for SACT:

- See ***Section 5.2.5*** for the emetogenic potential of individual SACT drugs.
- See ***Section 5.2.6*** for the emetogenic potential of combination SACT regimens.
- For combination SACT, choose the appropriate regimen for the most emetogenic drug included.
- Oral and intravenous formulations of antiemetics are generally believed to be equally effective.
- For haematology patients, where a steroid is not a desirable antiemetic, substitute a short course of a 5-HT_3 inhibitor (preferably 1 day).
- For multi-day regimens choose appropriate pre-SACT regimen for each day and on discharge give the antiemetics suggested for the day with the highest emetogenic potential
- Drugs acting on the same receptor (e.g. domperidone and metoclopramide OR metoclopramide and prochlorperazine/levomepromazine) should not be used together as the risk of side effects will be increased without additional clinical benefit.
- Other causes of nausea and vomiting should also be considered. These could include one or more of the following:
    - Radiotherapy
    - Radiosensitisers
    - Infection
    - Metabolic disorders
    - Electrolyte disturbances (hypercalcaemia, hyperglycaemia, hyponatraemia)
    - Uraemia
    - Constipation
    - Gastrointestinal obstruction
    - Gastroparesis induced by a tumour or chemotherapy (e.g. vincristine)
    - Cachexia syndrome

    - Metastases (brain, liver, brain)
    - Paraneoplasia
    - Other emetogenic medication (e.g. opioids, antibiotics, antifungals, amifostine)
    - Psychophysiological factors including anxiety and anticipatory nausea and vomiting
    - Vestibular dysfunction

- Because of the increased risk of serious ventricular arrhythmias or sudden cardiac death with domperidone, the dose should be restricted to 10mg tds and unless absolutely necessary, the duration should generally be limited to 1 week.
- When choosing antiemetics, individual patient factors should also be considered. Patients with 3 or more of the follow risk factors should be considered to receive additional antiemetics at the outsets:
    - female
    - <30 years of age
    - history of sickness (e.g. pregnancy hyperemesis, travel sickness, during surgery)
    - emesis with previous chemotherapy
    - underlying nausea and vomiting
    - anxiety

  Previous high alcohol intake can have a protective effect and reduce the risk of emesis.
- In diabetic patients and patients who are immunocompromised, the risks and benefits of the use of steroids must be carefully considered by the prescribing clinician.
- Omit dexamethasone/prednisolone pre-SACT if patient is on a high dose steroid-containing regimen e.g. R-CHOP, or if the patient is on high dose steroids for another medical reason.
- In the event of antiemetic failure (defined as prolonged and distressing nausea (4 hours of moderate to severe nausea) and/or ≥2 episodes of vomiting in 24 hours), move onto the suggested antiemetics for the next level of emetogenic potential.
- Consider omitting the post-SACT steroid or reducing length of course if the patient is on a weekly regimen or an oral SACT course longer than 3 days.
- Consider a gradual reducing weaning dose of corticosteroid in patients who experience adverse effects when stopping high dose steroids.
- Haloperidol is a useful agent in patients with renal impairment.
- 5-HT_3 inhibitor therapy should be administered on Day 1 of treatment for high/very high risk of emesis regimens. 5-HT_3 inhibitors can be continued for short courses if required, however use for > 3 days is not routinely recommended due to the risk of constipation.
- Consider the use of other routes of administration (e.g. subcutaneous, intravenous, rectal, buccal, sublingual, etc. (Do NOT use suppositories in patients with neutropenia).
- Ondansetron (particularly when given intravenously) may increase the risk of arrhythmia and Torsade de pointes, especially in patients with:
    - Congenital long QT syndrome
    - Pre-existing hypokalaemia, hypomagnesaemia or using alongside other medication which also prolong the QT interval

5.2.2 Guidance for patients receiving Checkpoint Inhibitors (CPIs)

- Checkpoint inhibitors (CPIs) represent a significant new therapeutic approach in many cancers. Concerns have been raised about the potential for concurrent corticosteroid use to adversely affect the therapeutic antineoplastic efficacy of CPIs through their immunosuppressive effects.
- In order to ascertain whether the use of corticosteroids used to prevent emesis and hypersensitivity reactions used in conventional chemotherapy adversely affects the efficacy of CPIs, ASCO convened an Expert Panel and undertook a systematic review and meta-analysis of a number of randomised controlled trials.
- ASCO reported that there was no clinical evidence to warrant the omission of dexamethasone from guideline-compliant prophylactic antiemetic re when CPIs are administered in combination with chemotherapy.
- They also reemphasised that CPIs administered alone or in combination with another CPI **do not** require the routine use of a prophylactic antiemetic.

5.2.3 Antiemetic selection for SACT regimens:

Emetogenic potential	Pre-SACT (for each day of SACT)	Post-SACT (day after SACT completed)	Antiemetic failure
Minimal: risk of emesis ≤10%	No routine antiemetics usually required	No routine antiemetics usually required. For first course of SACT, consider prescribing: Domperidone 10mg tds prn PO ***OR*** Metoclopramide 10mg tds prn PO ***OR*** Cyclizine 50mg tds prn PO	If no routine antiemetics taken, give 1st line antiemetics for breakthrough. No change in treatment for subsequent cycles. If routine antiemetics previously taken then manage subsequent cycles as moderately emetogenic
Low: risk of emesis 10-30%	Dexamethasone 8mg PO/IV **OR** Prednisolone 50mg PO **AND** Metoclopramide 10mg IV/PO ***OR*** Locally approved 5-HT_3 antagonist† e.g. Ondansetron 8mg PO/IV ***OR*** Granisetron 2mg PO ***OR*** Granisetron 1mg IV	No routine antiemetics usually required. For first course of SACT, consider prescribing: Domperidone 10mg tds prn PO ***OR*** Metoclopramide 10mg tds prn PO ***OR*** Cyclizine 50mg tds prn PO	If no routine antiemetics taken, give 1st line antiemetics for breakthrough. No change in treatment for subsequent cycles. If routine antiemetics previously taken then manage subsequent cycles as moderately emetogenic

Emetogenic potential	Pre-SACT (for each day of SACT)	Post-SACT (day after SACT completed)	Antiemetic failure
Moderate: risk of emesis: 30-60%	Dexamethasone 8mg PO/IV **OR** Prednisolone 50mg PO **AND** Metoclopramide 10mg IV/PO ***OR*** Locally approved 5-HT_3 antagonist† e.g. Ondansetron 8mg PO/IV ***OR*** Granisetron 2mg PO ***OR*** Granisetron 1mg IV ***OR*** Palonestron¥ 250mg IV	Dexamethasone 8mg PO or Prednisolone 50mg PO daily (as a single dose or in two divided doses) for 2-3 days ***AND/OR*** Locally approved 5-HT_3 antagonist† for 2 days. e.g. Ondansetron 8mg PO bd ***OR*** Granisetron 1mg bd or 2mg od PO ***AND/OR*** Domperidone 10mg tds PO PRN ***OR*** Metoclopramide 10mg tds PO PRN ***OR*** Cyclizine 50mg tds PO	Commence with 2nd line antiemetics for breakthrough. Manage subsequent cycles as highly emetogenic
† The 5-HT_3 antagonist of choice is currently ondansetron			

Emetogenic potential	Pre-SACT (for each day of SACT)	Post-SACT (day after SACT completed)	Antiemetic failure
High: risk of emesis: 60-90%*	Locally approved 5-HT_3 antagonist† e.g. Ondansetron 8mg PO/IV ***OR*** Granisetron∞ 2mg PO ***OR*** Granisetron∞ 1mg IV ***OR*** Palonestron¥ 250mg IV **AND** Dexamethasone* 8mg (12-20mg) PO/IV ***AND/OR*** Aprepitant*‡Ω 125mg PO	Dexamethasone 8mg PO daily (as a single dose or in two divided doses) for 2-3 days ***AND*** Domperidone 10mg tds PO PRN ***OR*** Metoclopramide 10mg tds PO PRN ***OR*** Cyclizine 50mg tds PO ***AND/OR*** Aprepitant*†Ω 80mg od PO for 2 days ***AND/OR*** Consider Levomepromazine 6-6.25mg nocte (max qds) PO PRN ***OR*** Haloperidol 0.5-1.5mg tds PO ***OR*** Olanzapine 2.5-5mg (max 10mg) od PO	Commence with 3rd line antiemetics for breakthrough. Manage subsequent cycles as very highly emetogenic with the routine addition of an NK-1 inhibitor if nausea and vomiting has resulted in hospital admission

† The 5-HT_3 antagonist of choice is currently ondansetron

‡ In diabetic patients, or in weekly highly emetic regimens (e.g. weekly cisplatin) it is appropriate to use Aprepitant 125mg PO on day of chemo and a reduced-dose steroid regimen (e.g. 2mg bd for dexamethasone) on days 2 & 3)

* Whenever aprepitant is given in combination with a corticosteroid, reduce the dexamethasone dose and oral methylprednisolone doses by 50% and reduce the IV methylprednisolone dose by 25%. In practice, this needs that the dexamethasone should generally be a maximum dose of 8-10mg. It is not necessary to reduce post-SACT doses of either corticosteroid. If an NK-1 inhibitor is not used, higher dose of dexamethasone (12-16mg) may be used.

Ω IV fosaprepitant can be used instead of aprepitant in patients unable to swallow or should they have significant mucositis or absorption problems. Alternatively, aprepitant capsules can be opened and mixed with water.

¥ Palonestron is currently non-formulary but is due to be reviewed by the DTC

∞ Granisetron (Sancuso®) 3.1mg/24hours patches are available although due to cost should be reserved for patients who are unable to swallow or should they have significant mucositis or absorption problems. Patches should be applied to clean, non-irritated, non-hairy skin on the upper arm (or abdomen if upper arm cannot be used) 24-48 hours before treatment and can be left on for up to 7 days.

Emetogenic potential	Pre-SACT (for each day of SACT)	Post-SACT (day after SACT completed)	Antiemetic failure
Very high: risk of emesis >90%	**SINGLE DAY TREATMENT** Locally approved 5-HT_3 antagonist† e.g. Ondansetron 8mg PO/IV ***OR*** Granisetron∞ 2mg PO ***OR*** Granisetron∞ 1mg IV **AND** Dexamethasone* 8mg (12-20mg) PO/IV ***AND*** Aprepitant*‡Ω 125mg PO ***AND/OR*** Olanzapine 2.5-5mg (max 10mg) od PO	Aprepitant*†Ω 80mg od PO for 2 days (no post-SACT NK-1 inhibition is required if Fosaprepitant was used) ***AND*** Dexamethasone 8mg PO daily (as a single dose or in two divided doses) for 2-3 days ***AND*** Domperidone 10mg tds PO PRN ***OR*** Metoclopramide 10mg tds PO PRN ***OR*** Cyclizine 50mg tds PO ***AND/OR*** Consider Levomepromazine 6-6.25mg nocte (max qds) PO PRN ***OR*** Haloperidol 0.5-1.5mg tds for 3-5 days (or continuously) & then PRN PO ***OR*** Olanzapine 2.5-5mg (max 10mg) od for 3-5 days (or continuously) & then PRN PO	If nausea and/or vomiting >7 days, consider corticosteroid-induced dyspepsia and commence proton-pump inhibitor (PPI). In addition, ensure that one of the prophylactic antipsychotics (e.g. olanzapine or haloperidol) have also been used. Should patients continue to experience nausea or vomiting despite optimal prophylaxis then lorazepam 0.5-1mg given orally, sublingually/buccally or intravenously 30 minutes before SACT is given should be added to the antiemetic schema. Patients may also benefit from oral lorazepam the night before and/or on the morning of SACT. Alprazolam 0.5-1mg (max 2mg) nocte PO may be used as an alternative.
	MULTIPLE DAY TREATMENT		
	DAY 1: as above for single day treatment	**SUBSEQUENT DAYS:** Aprepitant*†Ω 80mg od PO for 2 days (no post-SACT NK-1 inhibition is required if Fosaprepitant was used) ***AND*** Dexamethasone 8mg PO/IV ***AND***	

		5-HT_3 antagonist as day 1 (NOT required if received Akynzeo®) ***AND/OR*** Olanzapine 2.5-5mg (max 10mg) od PO ***PLUS*** Adjuncts as detailed above. Continue until 2 days after treatment has finished	

† The 5-HT_3 antagonist of choice is currently ondansetron

‡ In diabetic patients, or in weekly highly emetic regimens (e.g. weekly cisplatin) it is appropriate to use Aprepitant 125mg PO on day of chemo and a reduced-dose steroid regimen (e.g. 2mg bd for dexamethasone) on days 2 & 3)

* Whenever aprepitant is given in combination with a corticosteroid, reduce the dexamethasone dose and oral methylprednisolone doses by 50% and reduce the IV methylprednisolone dose by 25%. In practice, this needs that the dexamethasone should generally be a maximum dose of 8-10mg. It is not necessary to reduce post-SACT doses of either corticosteroid. If an NK-1 inhibitor is not used, higher dose of dexamethasone (12-16mg) may be used.

Ω IV fosaprepitant can be used instead of aprepitant in patients unable to swallow or should they have significant mucositis or absorption problems. Alternatively, aprepitant capsules can be opened and mixed with water.

¥ Palonestron is currently non-formulary but is due to be reviewed by the DTC

∞ Granisetron (Sancuso®) 3.1mg/24hours patches are available although due to cost should be reserved for patients who are unable to swallow or should they have significant mucositis or absorption problems. Patches should be applied to clean, non-irritated, non-hairy skin on the upper arm (or abdomen if upper arm cannot be used) 24-48 hours before treatment and can be left on for up to 7 days.

Emetogenic potential	Pre-SACT (for each day of SACT)	Post-SACT (day after SACT completed)	Antiemetic failure
Anticipatory Nausea and Vomiting	If nausea and vomiting are well controlled during and after SACT, anticipatory nausea and vomiting is unlikely to occur.		Lorazepam 0.5-1mg orally, sublingually/buccally or intravenously 30 minutes before SACT is given. Patients may benefit from oral lorazepam the night before and/or on the morning of SACT. Alprazolam 0.5-1mg (max 2mg) nocte PO may be used as an alternative.
Checkpoint Inhibitors (CPIs)	The addition of a CPI to chemotherapy does not the above guideline recommendation for an antiemetic regimen based on the emetogenicity of the agent(s) administered. CPIs administered alone or in combination with another CPI are minimally emetogenic and **do not** require the routine use of a prophylactic antiemetic although if required then either metoclopramide and/or a 5-HT_3 antagonist should be given.		

5.2.4 Treatment of SACT induced breakthrough nausea and vomiting:

	Drug and schedule	Comments
1st Line (patients not taking regular antiemetics)	Domperidone 10mg PO tds ***OR*** Metoclopramide 10mg PO/IV tds ***OR*** Cyclizine 50mg PO tds	Prescribe regularly in addition to recommended post-SACT antiemetics DO NOT use domperidone and metoclopramide together.
2nd Line	Levomepromazine 6.25mg bd PO **OR** Prochlorperazine 5-10mg PO tds or 25mg PR tds (Alternatively, buccal prochlorperazine (Buccastem®) 3-6mg bd can be quite useful for breakthrough in patients who are vomiting or have difficulties swallowing tablets **OR** Olanzapine 2.5-5mg (max 10mg) PO od **OR** Cyclizine 50mg PO/IV tds	Levomepromazine/prochlorperazine/ cyclizine replaces domperidone/metoclopramide as post-SACT antiemetic
3rd Line	Granisetron 1mg IV ***OR*** Ondansetron 8mg PO/IV ***AND/OR*** Levomepromazine 6.25mg PO up to tds or 6.25-12.5mg SC	Use short-course only Levomepromazine/prochlorperazine/ cyclizine replaces domperidone/metoclopramide as post-SACT antiemetic

	OR Olanzapine 2.5-5mg (max 10mg) PO od ***OR*** Haloperidol 1-2mg qds or 1-3mg IV tds ***AND/OR*** Cyclizine[α] 50mg SC tds or 150mg SC continuous infusion over 24 hours ***AND/OR*** Lorazepam 0.5-1mg PO qds (as adjunct rather than being given stat) ***AND/OR*** Nabilone[†] 1-2mg PO bd - tds	S/C infusion of cyclizine[α] may be considered 1st or 2nd line if severe vomiting occurs in patients Concomitant use of cyclizine and domperidone/metoclopramide should be avoided because of the well-documented antagonism between anticholinergics and dopamine antagonists

[†] Nabilone has been recommended by NICE (NG144) as a treatment option in patients with chemotherapy-induced nausea and vomiting which persists despite receiving optimised conventional antiemetics. Evidence for the benefit of medicinal cannabinoids is somewhat limited and they are not recommended in ASCO and MASCC guidance and therefore should only be used as a last resort. Only nabilone is currently licensed in the UK and is listed under Schedule 2 of the Misuse of Drugs Regulations 2001 so needs to be prescribed using full controlled drug requirements. As nabilone is non-formulary, an application to the DTC would be required before it could be used.
The recommended dose of nabilone is 1mg PO bd, increased if necessary to 2mg bd throughout each cycle of SACT and, if necessary, for 48 hours after the last dose of each cycle. The first dose should be taken the night before treatment and the second dose 1–3 hours before the first dose of SACT. The maximum recommended daily dose is 2mg tds.

5.2.5 Emetic potential of individual SACT drugs: *This list is not exhaustive*

Minimal (<10%)	Low (10-30%)	Moderate (30-60%)	High (60-90%)	Very High (>90%)
Avelumab	5-Fluorouracil	Alemtuzumab	Altretamine	Anthracycline/ cyclophosphamide (EC/FEC/AC/FAC)
Bevacizumab	Afatinib	Azacitidine	Amsacrine	
Bleomycin	Aflibercept	Bendamustine	Arsenic trioxide[β]	Busulfan (High Doses)
Busulfan <10mg	Alectinib	Bexarotene	Azacitidine	
Cabozantinib	Alemtuzumab	Carboplatin ≤AUC4	Bosutinib	Carmustine 250mg/m^2
Cemiplimab	Amifostine <300mg/m^2		Busulfan (Mod Doses)	
Chlorambucil		Carmustine <250mg/m^2		Cisplatin >70mg/m^2
Cladribine	Asparaginase		Cabozantinib	Cyclophosphamide ≥1500mg/m^2
Daratumumab	Atezolizumab	Clofarabine	Carboplatin >AUC4	
Erlotinib	Axitinib	Cyclophosphamide 500mg–750mg/m^2		Dacarbazine
Fludarabine	Belinostat		Carmustine ≥250mg/m^2	Doxorubicin ≥60mg/m^2
Gefitinib	Blinatumumab	Cytarabine ≤1g/m^2		
Hydroxycarbamide	Bortezomib	Dactinomycin (Actinomycin-D)	Ceritinib	Epirubicin ≥90mg/m2
Melphalan PO	Brentuximab vedotin		Cisplatin ≤70mg/m^2	Hexamethylmelamine
Methotrexate PO		Daunorubicin <50mg/m^2		Ifosfamide >3g/m^2
Nivolumab	Cabazitaxel		Crizotinib	Mechlorethamine
Obinutuzumab	Capecitabine	Doxorubicin <60mg/m^2	Cyclophosphamide 750-1500mg/m^2	Procarbazine
Ofatumumab	Carfilzomib			Streptozocin
Pembrolizumab	Catamaxomab	Estramustine	Cytarabine >1g/m^2	
Pixantrone	Cetuximab	Etoposide >120mg/m^2	Dactinomycin (Actinomycin-D)	
Pomalidomide	Cobimetinib			
Pralatrexate	Cyclophosphamide ≤500mg	Idarubicin	Daunorubicin ≥50mg/m^2	
Ramucirumab		Ifosfamide <2g/m^2		
Rituximab	Cytarabine ≤1g/m^2	Irinotecan	Doxorubicin ≥60mg/m^2	
Ruxolitinib	Dabrafenib	Irinotecan liposomal injection		
Sorafenib	Dasatinib		Epirubicin <90mg/m^2	
Trastuzumab	Daunorubicin (liposomal)	Ixabepilone		
Vemurafenib		Lenvatinib	Estramustine	
Vinblastine	Decitabine	Methotrexate (100-250mg/m^2)	Idarubicin	
Vincristine	Denileukin		Ifosfamide 2-3g/m^2	
Vinorelbine IV	Dexrazoxane	Mifamurtide	Lomustine	
Vismodegib	Docetaxel	Mitoxantrone	Melphalan IV>100mg/m^2	
	Doxorubicin (liposomal)	Oxaliplatin		
		Raltitrexed	Methotrexate >250mg/m^2	
	Elotuzumab	Romidepsin		
	Eribulin	Temozolamide	Thiotepa	
	Etoposide ≤120mg/m^2	Teniposide	Vinorelbine PO	
		Trabectedin		
	Everolimus	Treosulfan		
	Fludarabine	Trifluoridine-tipiracil (Lonsurf®)		
	Gemcitabine			
	Gemtuzumab	Vinorelbine PO		
	Ibrutinib	Vorinostat		
	Idelalisib			
	Imatinib			
	Ipilimumab			
	Ixabepilone			
	Ixazomib			
	Lapatinib			
	Lenalidomide			
	Mercaptopurine (6-MP)			
	Methotrexate (<100mg/m^2)			
	Mitomycin C			
	Mitoxantrone			

Minimal (<10%)	Low (10-30%)	Moderate (30-60%)	High (60-90%)	Very High (>90%)
	Necitumumab			
	Nelarabine			
	Nilotinib			
	Nivolumab			
	Olaparib			
	Omecetaxine			
	Osimertinib			
	Paclitaxel			
	Paclitaxel-albumin (Abraxane®)			
	Palbociclib			
	Panitumumab			
	Panobinostat			
	Pazopanib			
	Pegaspargase			
	Pembrolizumab			
	Pemetrexed			
	Pentostatin			
	Pertuzumab			
	Ponatinib			
	Regorafenib			
	Romidepsin			
	Sonidegib			
	Sunitinib			
	Tegafur uracil			
	Temsirolimus			
	Thalidomide			
	Thiotepa			
	Tioguanine			
	Topotecan			
	Trabectedin			
	Trametinib			
	Trastuzumab-Emtansine (Kadcyla®)			
	Tretinoin (ATRA)			
	Valrubicin			
	Vandetanib			
	Venetoclax			
	Vindesine			
	Vinflunine			
	Vorinostat			

Route Parenteral Oral IV or Oral

β Arsenic trioxide should not be given with other medications with affect the QT interval. The preferred antiemetic for arsenic trioxide is cyclizine.

5.2.6 Emetic potential for combination SACT regimens: *This list is not exhaustive*

Tumour type	Regimen	Risk of Emesis
Breast	CMF	High
	EC	High
	FEC100	Very High
	TAC	High
	TCH	High
CNS	PCV	High
Colorectal	FOLFIRI	Moderate
	FOLFOX (OxMdG)	High
	FOLFOXIRI	High
	Mitomycin/Fluorouracil	Low-Moderate
	Modified de Gramont (MdG)	Low
	XELOX/CAPOX	High
Gynae	Carboplatin/Liposomal Doxorubicin	High
	Carboplatin/Paclitaxel	High
	Cisplatin/Etoposide	Very high
Haematology	ABVD	Very High
	CHOP	High
	CODOX-M	High
	CVP	Moderate
	ESHAP	High
	FC	Moderate
	IVE	Very High
	Mini-BEAM	Very High
	IVAC	Very High
	R-CHOP	High
	R-CVP	Moderate
Head & Neck	TPF	Very High
Lung	Carboplatin/Etoposide	High
	Carboplatin/Gemcitabine	High
	Carboplatin/Pemetrexed	High
	Carboplatin/Pemetrexed/Pembrolizumab	High
	Cisplatin/Etoposide	Very High
	Cisplatin/Pemetrexed	Very High
	Cisplatin/Vinorelbine	Very High
Sarcoma	Doxorubicin/Cisplatin VIDE	Very High
Upper GI	Cisplatin/Fluorouracil	Very High
	Cisplatin/Gemcitabine	Very High
	ECF	High
	FOLFIRINOX	High
	Mitomycin/Fluorouracil	Low-Moderate
Urology	BEP	Very High
	Cisplatin/Gemcitabine TIP	Very High

5.3 Radiation-induced nausea and vomiting:

5.3.1 Principles of management:

- As for SACT induced nausea and vomiting, the goal of antiemetic therapy is to prevent-or minimise the severity and duration of-nausea and vomiting.
- The risk of radiation-induced emesis varies with the treatment administered.

5.3.2 Determinants of emetic risk:

- The determinants of emetic risk in relation to radiotherapy are as follows:
  - The actual treatment field
  - The dose of radiotherapy administered per fraction
  - The pattern of fractionation

5.3.3 Guidance for patients receiving Chemo-Radiation:

- For patients receiving chemo-radiation, treat with antiemetic therapy according to the highest emetogenic risk based on the SACT regimen or the radiotherapy treatment field.

5.3.4 Guidance for patients receiving Radiotherapy without SACT:

- Prophylactic antiemetics are not usually required for treatments to the head and neck (outside of the brain), upper thorax, breast, extremities, and localised prostate. However, a prophylactic 5-HT_3 antagonist antiemetic should be considered when pituitary/hypothalamus/ sphenoid are within IMRT fields (e.g. maxillary sinus, ethmoid sinus, nasopharynx).
- For the spinal fields, consider a stat dose of 5-HT_3 antagonist plus domperidone/ metoclopramide prn (large field) or regular domperidone/metoclopramide alone (smaller fields).

Risk Level	Irradiated Area	Pre-radiotherapy antiemetic - 1 hour before each fraction	Antiemetic breakthrough
Minimal Risk (<10%)	Extremities Breast	No prophylactic antiemetics are routinely recommended but consider issuing: Domperidone 10mg tds PO PRN ***OR*** Metoclopramide 10 tds PO PRN ***OR*** Cyclizine 50mg PO/IV PRN	Commence with 1st level antiemetics for breakthrough nausea and vomiting. Treat on subsequent fractions as moderately emetogenic.
Low (10-30%)	Lower thorax region and pelvis. palliative posterior spine fields at the level of T12/L1		
Moderate (30-90%)	Upper abdomen hemibody irradiation, upper abdomen abdominal-pelvic, mantle and craniospinal irradiation. Lower oesophagus and cranial radiosurgery.	5-HT_3 antagonist e.g. Ondansetron 8mg PO/IV ***OR*** Granisetron 1-2mg PO/IV ***AND*** Domperidone 10mg tds PO PRN ***OR*** Metoclopramide 10 tds PO PRN ***OR*** Cyclizine 50mg PO/IV PRN ***AND/OR CONSIDER*** Dexamethasone 8mg PO/IV	Commence with 2nd level antiemetics for breakthrough nausea and vomiting. Treat on subsequent fractions as highly emetogenic.
High (>90%)	Total Body Irradiation (TBI) Cranial Stereotactic	5-HT_3 antagonist e.g. Ondansetron 8mg PO/IV ***OR***	Commence with 2nd level antiemetics for breakthrough nausea

	Radiosurgery Single 10 Gy to palliative lung with bronchial obstruction.	Granisetron 1-2mg PO/IV ***AND*** Dexamethasone 8mg PO/IV ***AND*** Domperidone 10mg tds PO PRN ***OR*** Metoclopramide 10 tds PO PRN ***OR*** Cyclizine 50mg PO/IV PRN	and vomiting. Continue for 24 hours after fraction

5.3.5 Guidance for Breakthrough Antiemetics for Radiotherapy-Induced Nausea and Vomiting

- Refer to ***Section 5.2.4*** for details of recommended breakthrough antiemetics for radiotherapy-induced nausea and vomiting.

6.0 TRAINING/COMPETENCE REQUIREMENTS

6.1 There are no specific or mandatory training requirements required to read and implement this document although all prescribers and Allied Healthcare Professionals (AHPs) should refer and adhere to its guidance whenever prescribing or administering antiemetics.

7.0 MONITORING

Element of policy for monitoring	Section	Monitoring method - Information source (e.g. audit)/ Measure / performance standard	Item Lead	Monitoring frequency / reporting frequency and route	Arrangements for responding to shortcomings and tracking delivery of planned actions
All	All	Incident monitoring	EC	As required	Incident monitoring/Cytotoxic Pharmacy Group meetings

8.0 ABBREVIATIONS

AHP	Allied Healthcare Professionals
ASCO	American Society of Clinical Oncology
CPI	Checkpoint Inhibitor(s)
ESMO	European Society of Medical Oncology
HCS	HOPE (Haematology, Oncology & Palliative Care Executive) and Clinical Support
IV	Intravenous
IVN	Intravenous Nutrition (aka Total Parenteral Nutrition (TPN))
MASCC	Multinational Association of Supportive Care in Cancer
N&V	Nausea and vomiting
OP	Original Pack
PO	Oral
SACT	Systemic Anti-Cancer Treatment
SC	Subcutaneous
SL	Sublingually

9.0 REFERENCES *Ensure only current references of source literature for the document are used. List the key references first, such as national guidance or legislation.*

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9.11 2019 Antiemetic Recommendations for Chemotherapy-Induced Nausea and Vomiting: A Clinical Practice Guideline. Cancer Care Ontario (CCO). 2019 Antiemetic Recommendations for Chemotherapy-Induced Nausea and Vomiting: A Clinical Practice Guideline | Cancer Care Ontario.

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9.13 Antiemetics: ASCO Guideline Update. Hesketh, PJ *et al*. *J Clin Oncol* **38**:2782-2797. DOI https://doi.org/10. 1200/JCO.20.01296.

9.14 BC Cancer Guidelines for Prevention and Treatment of Chemotherapy-Induced Nausea and Vomiting in Adults. Updated 1st July 2020. Guidelines for Prevention and Treatment of Chemotherapy-Induced Nausea and Vomiting in Adults (bccancer.bc.ca)

9.15 Thames Valley NHS “Antiemetic Guidelines for the Prophylaxis of Chemotherapy and Radiotherapy Induced Nausea & Vomiting in Adults”. September 2019. TVCN blank document (tvscn.nhs.uk)

9.16 Twycross, Wilcock & Howard (2014). Palliative Care Formulary. Fifth Edition. www.palliativedrugs.com.

11.0 APPENDICES

11.1 APPENDIX A - Action of Antiemetics on Main Receptor Sites

Drug	D_2 Antagonist	H_1 Antagonist	ACh Antagonist	5-HT_2 Antagonist	5-HT_3 Antagonist	5-HT_4 Antagonist	NK-1 Inhibitor
Akynzeo®	++	+		++	+++		+++
Aprepitant							+++
Cyclizine		++	++				
Domperidone	++						
Fosaprepitant							+++
Granisetron					+++		
Haloperidol	+++				+/-		
Hyoscine Hydrobromide			+++				
Levomepromazine	++	+++	++	+++			
Metoclopramide	++				+	++	
Olanzapine	++	+	++	++	+		
Ondansetron					+++		
Prochlorperazine	+++	++	+	+/++			

Table adapted from Twycross R, Wilcock A, Palliative Care Formulary Fifth Edition (2014)

11.2 APPENDIX B – Antiemetic Information Refer to BNF/SmPC for more information

Drug / Drug Group	Comments
5-HT_3 antagonist	Patients may complain of constipation and headaches. Patients need to be advised accordingly, e.g. laxido $^{+}/_{-}$ senna $^{+}/_{-}$ docusate sodium to relieve constipation and paracetamol to relieve headache. If severe, consider an alternative antiemetic. Ondansetron is available in orodispersible tablet or as a suppository. Granisetron is available as a transdermal patch. Treatment should be switched to granisetron should a patient develop migraine symptoms whilst receiving ondansetron. Palonsetron is a long-acting 5-HT_3 antagonist which is associated with a lower incidence of constipation than other 5-HT_3 antagonists. It is currently non-formulary although may be given alongside netupitant (Akynzeo®)
Aprepitant and Fosaprepitant	Aprepitant and Fosaprepitant are NK-1 receptor antagonists shown to inhibit emesis induced by cytotoxic chemotherapeutic agents, such as cisplatin, via central actions. In addition, studies show that aprepitant augments the antiemetic activity of the 5-HT_3-receptor antagonist & dexamethasone and inhibits both the acute and delayed phases of cisplatin-induced emesis. When given in combinations with corticosteroids, the SmPC suggests: reduce oral dexamethasone dose by 50%, reduce methylprednisolone IV dose by 25% and oral dose by 50%. NB for practical reasons it is not necessary to halve post chemotherapy dexamethasone doses as confirmed in the aprepitant trial data.

	Common side effects include headaches, hiccups and fatigue.
Akynzeo®	Akynzeo® is a combination of netupitant (NK-1 antagonist) and palonsetron (5-HT_3 antagonist). See above for further information relating to both antiemetics.
Cannabinoids	Evidence for the benefit of medicinal cannabinoids is somewhat limited although has recently been recommended by NICE to treat intractable nausea or vomiting. Only nabilone is currently licensed in the UK and is listed under Schedule 2 of the Misuse of Drugs Regulations 2001.
Cyclizine	Cyclizine may cause antimuscarinic side effects such as dryness of the mouth and drowsiness. Children and the elderly are more susceptible to these effects. Cyclizine should not be used in patients with severe heart failure as it can cause a reduction in cardiac output and an increase in heart rate. Cyclizine should not be combined with pro-kinetics such as domperidone or metoclopramide as they will theoretically antagonise one another. Cyclizine should be infused slowly to reduce the risk of infusion-related reactions.
Dexamethasone/ Prednisolone	Corticosteroids can cause sleep disturbances, hyperactivity and excessive appetite. They also produce glucose-intolerance, use with care in patients with diabetes mellitus. Patients may experience perineal discomfort if the drug is given by IV bolus; this can be avoided by administration via IV infusion.
Domperidone	Domperidone should not be used when stimulation of the gastric motility could be harmful e.g. gastro-intestinal haemorrhage, mechanical obstruction or perforation. Contra-indicated in cardiac diseases where cardiac conduction is, or could be, impaired. The maximum daily dose is 10mg tds.
Haloperidol	Avoid or use smaller dose in renal impairment. Possible risk of causing extrapyramidal symptoms.
Levomepromazine	Avoid in patients with liver dysfunction. Inhibits cytochrome P-450. Common side effects are somnolence, asthenia, dry mouth, hypotension, photosensitivity and skin reactions.
Lorazepam	Can cause drowsiness and may affect performance of skilled tasks (driving). Antiemetic use as adjunct rather than single agent recommended. May be given sublingually for more rapid effect.
Metoclopramide	Can rarely cause agitation or the development of extra-pyramidal symptoms particularly in young female patients. These can occur up to 24 hours after a dose and may vary from facial grimacing and dystonic movements to odd feelings in the mouth, restlessness, somnolence and irritability. Bowel transit time may be reduced and some patients experience diarrhoea. Maximum dose 30 mg in 24 hours (10mg tds).
Olanzapine	Traditionally used as an anti-psychotic medication but has been shown to be effective in reducing incidence of chemotherapy induced nausea and vomiting. Available as orodispersible tablet.
Prochlorperazine	Prochlorperazine should be avoided in patients with liver or renal dysfunction, Parkinson's disease, hypothyroidism, cardiac failure, phaeochromocytoma, myasthenia gravis, prostatic hypertrophy. A mild leukopenia occurs in up to 30% of patients on prolonged high dosage. May cause drowsiness. Available to use buccally as Buccastem 3-6mg BD.

11.3 APPENDIX C – List and Contract Costs of Antiemetics

		List Price (£ exc. VAT) *BNF #80 (Sep 2020 – Mar 2021)*		Contract Price (£ exc. VAT) *(CMU Jan 2021)*	
		Per Dose	**Per Cycle or OP**	**Per Dose**	**Per Cycle or OP**
NK-1 Receptor Antagonist	Aprepitant				
	80mg capsule	£13.44	£42.68	£3.95	£11.86
	125mg capsule	£15.81		£3.95	
	125mg/80mg pack	£44.10	£44.10	£5.10	£5.10
	Fosaprepitant				
	150mg vial	£47.42	£47.42	£47.42	£47.42
5-HT$_3$ Antagonist	Ondansetron				
	4mg tablets – 10s	£0.77	£4.62	£0.20	£1.20
	4mg tablets – 30s	£0.12	£0.72	£0.03	£0.18
	4mg orodispersible tab	£4.35	£26.10	£0.59	£3.54
	8mg tablets	£0.16	£0.48	£0.08	£0.24
	8mg orodispersible tab	£8.54	£25.62	£1.26	£3.78
	4mg/5mL sol – 50mL	£39.88	£23.93	£5.22	£3.13
	4mg/2mL ampoule	£1.00 - 5.70	£6.00 – 34.20	£0.15	£0.90
	8mg/4mL ampoule	£6.00 - 11.99	£18.00 – 35.97	£0.20	£0.60
	16mg suppository	£14.39	£43.17	£14.00	£42.00
	Granisetron				
	1mg tablet	£4.08	£20.40	£0.57	£2.84
	2mg tablet	£5.24	£15.72	£5.24	£15.72
	1mg/1mL ampoule	£2.00	£10.00	£0.90	£4.48
	3mg/3mL ampoule	£6.00	£18.00	£1.09	£5.44
	3.1mg/24hrs patch	£56.00	£56.00	£56.00	£56.00
	Palonosetron				
	500mcg capsule	£55.89	£55.89	£55.89	£55.89
	250mcg/5mL vial	£53.10	£53.10	£7.11	£7.11
NK-1 + 5-HT$_3$	Palonosetron + Netupitant				
	300mg/0.5mg capsule	£69.00	£69.00	£43.20	£43.20
Corticosteroids	Dexamethasone				
	500mcg tablet	£0.26	£12.48	£0.07	£3.50
	2mg tablet	£0.10	£1.20	£0.05	£0.60
	2mg soluble tablet	£0.60	£7.20	£0.12	£1.48
	4mg soluble tablet	£1.20	£7.20	£0.25	£1.48
	8mg soluble tablet	£2.40	£7.20	£0.49	£1.48
	2mg/5mL sol. 150mL	£0.56	£16.92	£0.56	£2.40
	10mg/5mL sol. 150mL	£2.52	£7.56	£2.52	£7.56
	20mg/5mL sol. 50mL	£3.96	£11.88	£3.96	£11.88
	3.3mg/1mL ampoule	£2.38	£14.28	£0.26	£1.56
	6.6mg/2mL ampoule	£2.32	£13.92	£0.28	£1.40
	Prednisolone				

		List Price (£ exc. VAT) *BNF #80 (Sep 2020 – Mar 2021)*		Contract Price (£ exc. VAT) *(CMU Jan 2021)*	
		Per Dose	**Per Cycle or OP**	**Per Dose**	**Per Cycle or OP**
	1mg tablet – 28s	£1.59	£4.77	£0.27	£0.80
	2.5mg EC tablet – 28s	£0.05	£2.89	£0.02	£1.24
	5mg tablet – 28s	£0.52	£1.55	£0.14	£0.43
	5mg EC tablet – 28s	£0.06	£1.80	£0.02	£0.70
	5mg sol. Tablet – 30s	£3.88	£11.63	£2.33	£7.00
	25mg tablets – 56s	£2.79	£8.37	£0.63	£1.88
	5mg/5mL sol – 10s	£11.41	£34.23	£7.40	£22.20
	10mg/mL sol – 30mL	£18.43	£55.50	£15.00	£45.00
Dopamine Receptor Antagonist	Metoclopramide				
	10mg tablet – 28s	£0.05	£1.33	£0.01	£0.20
	5mg/5mL sol 150mL	£0.70	£19.79	£0.17	£5.00
	10mg/2mL ampoule	£0.36	£10.80	£0.12	£3.54
	Domperidone				
	10mg tablet – 30s	£0.03	£0.95	£0.01	£0.16
	1mg/1mL sol 200mL	£24.85	£24.85	£2.75	£2.75
Anti-histamine	Cyclizine				
	50mg tablet – 100s	£0.75	£2.24	£0.03	£0.98
	50mg/1mL ampoule	£3.75	£112.50	£1.24	£37.38
Antipsychotics – 1st Generation	Haloperidol				
	500mcg capsule – 28s	£1.13	£31.62	£1.13	£31.62
	1.5mg tablet – 28s	£0.18	£4.97	£0.03	£0.90
	5mg tablet – 28s	£0.16	£4.45	£0.07	£2.00
	10mg/5mL sol 100mL	£0.36	£7.10	£0.36	£7.10
	5mg/1mL ampoule	£3.50	£105.00	£2.80	£84.00
	Levomepromazine				
	6mg tablet	£8.57	£240.00	£8.57	£240.00
	25mg tablet	£0.06	£20.26	£0.06	£18.74
	25mg/1mL ampoule	£2.01	£20.13	£0.61	£6.08
	Prochlorperazine				
	5mg tablet – 28s	£0.04	£1.16	£0.01	£0.25
	3mg buccal tabs – 8s	£0.49	£3.95	£0.34	£2.72
	3mg buccal tabs – 50s	£0.49	£24.68	£0.29	£14.25
	5mg/5ml sol 150mL	£3.34	£3.34	£3.34	£3.34
	12.5mg/1mL ampoule	£0.52	£5.20	£0.48	£4.84
Antipsychotics – 2nd Generation	Olanzapine				
	2.5mg tablet	£0.07	£0.20	£0.02	£0.05
	5mg tablet	£0.06	£0.19	£0.02	£0.06
	5mg orodispersible tablet	£0.25	£0.74	£0.05	£0.15
	7.5mg tablet	£0.07	£0.20	£0.03	£0.08
	10mg tablet	£0.10	£0.29	£0.03	£0.08
	10mg orodispersible tablet	£0.41	£1.23	£0.06	£0.17

		List Price (£ exc. VAT) *BNF #80 (Sep 2020 – Mar 2021)*		Contract Price (£ exc. VAT) *(CMU Jan 2021)*	
		Per Dose	**Per Cycle or OP**	**Per Dose**	**Per Cycle or OP**
Benzodiazepine	Lorazepam				
	500mcg tablet – 28s	£0.49	£13.83	£0.49	£13.83
	1mg tablet – 28s	£0.12	£3.46	£0.04	£1.25
	2.5mg tablet – 28s	£0.23	£6.67	£0.13	£3.75
	1mg/1mL sol 150mL	£0.69	£103.62	£0.69	£103.62
	4mg/1mL vial	£0.35	£3.50	£0.35	£3.50
Cannabinoids	Nabilone				
	250mcg capsule – 20s	£7.50	£150.00	£7.50	£150.00
	1mg capsule – 20s	£9.80	£196.00	£9.80	£196.00