UKONS
Oncology Nursing Society

ACUTE ONCOLOGY INITIAL MANAGEMENT GUIDELINES

Version 4.0
13.02.2023 (review date: 3 years or sooner if required due to new evidence)
Please check that you have the latest version.

Guidelines for the initial management of adult patients who have a cancer diagnosis, and present as an emergency or unplanned admission with a complication of their disease or cancer treatment.

The UK Acute Oncology Society have worked with UKONS on the review and development of these guidelines.

UKAOS
UK Acute Oncology Society

The following professional bodies have reviewed the guidelines and support use in practice:

THE UK SACT Systemic Anti-Cancer Therapy BOARD

The Royal College of Pathologists
Clinical Oncology
The Royal College of Radiologists
acp Association of Cancer Physicians
Royal College of Physicians
UKONS Oncology Nursing Society
bopa

sam
THE SOCIETY FOR ACUTE MEDICINE

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DISCLAIMER

The information contained in these guidelines is a consensus of the development and consultation groups' views on current treatment. They should be used in conjunction with any local policies/procedures/guidelines and should be approved for use according to the trust clinical governance process. Care has been taken in the preparation of the information contained in the guidelines. Nevertheless, any person seeking to consult the guideline, apply its recommendations or use its content is expected to use independent, personal medical and/or clinical judgment in the context of the individual clinical circumstances, or to seek out the supervision of a qualified clinician. The United Kingdom Oncology Nursing Society makes no representation or guarantee of any kind whatsoever regarding the guidelines content or its use or application and disclaim any responsibility for its use or application in any way.

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Introduction

These guidelines relate to the initial assessment and immediate management of Acute Oncology patients, i.e. patients presenting with an acute problem, demonstrating symptoms deemed as having been caused by:

- Systemic Anti-Cancer Therapy (SACT)
- Radiotherapy
- Malignant disease
- A previously undiagnosed cancer where an urgent oncology/haematology assessment is required.

It is **emphasised** that these guidelines focus on initial assessment at presentation and management for the first **24 hours**. Patients should be referred to, or discussed with the Acute Oncology Team as soon as possible following presentation. The Acute Oncology team will provide further advice and on-going management guidance.

To aid in this urgent initial assessment, each protocol follows a RAG (red, amber, green) format and quick reference assessment, which is in line with the UKONS Oncology/Haematology 24-Hour Triage Tool (V2, 2016).

The Common Terminology Criteria for Adverse Events (CTCAE Version 5.0), an international standard set of criteria for defining adverse events (AE) and their grading within clinical trials and the routine management of Oncology/ Haematology patients, has been applied to assist with the recognition and management of AE.

Intended Audience

These guidelines are intended for use by all health care professionals who assess and/or manage acute oncology patients at presentation. The guidelines may also be useful as an adjunct to the UKONS Triage tool when providing care advice following telephone triage (Appendix 1, P.56/57). They are mostly single-page "see-and-treat" guides. Whilst drug names may be referenced within a guideline, this is offered as a guide only, it is acknowledged that local variation may apply.

Please be aware of NICE National Guidelines/Pathways for the management of:

- Neutropenic Sepsis: NICE Guideline
- Metastatic Spinal Cord Compression: NICE Guideline
- Metastatic malignant disease of unknown primary origin in adults: diagnosis and management: NICE Guideline

Additional resources:

- Scottish Palliative Care Guidelines
- United Kingdom Acute Oncology Society: UKAOS
- Directory of Ambulatory Care for Adults: AEC directory
- UK Oral Management in Cancer Care Group: UKOMiC Guidelines
- Royal Society of Radiographers: sor.org

The development and consultation group worked to provide a set of generic guidelines based on national guidance and clinical expertise. They have now been reviewed and updated to ensure that they remain applicable and cover current best practice in the management of treatment induced toxicity and acute disease related complications. The authors request that the original source is acknowledged in all copies or adaptations.

General Information and Management Principles

- **Please consider drug toxicity as a possible cause of presenting problem**. Systemic Anti-Cancer Therapy (**SACT**) includes cytotoxic chemotherapy, monoclonal antibodies, targeted agents, immunotherapy and new and novel therapies
- **SACT toxicities can cause acute deterioration but are often reversible if managed rapidly and appropriately**. All patients on SACT may develop toxicities and are at risk; they may also have or develop additional toxicities to the one they are complaining of. Patients may be on new, novel, or trial therapy, and may present with unexpected or unknown side effects
- **Patients should know what treatment they are receiving and have written information about their SACT and an alert card with their 24-hour advice line telephone number**. These advice lines provide telephone triage and assessment for patients receiving treatment and will advise regarding the need for urgent assessment or review and follow up. In most cases, if a patient or carer telephones your department for advice it would be wise to redirect their call to the specialist advice line. However, if you are worried about the patient or their ability to give an accurate history, or you think that this may be a medical emergency then urgent medical review is essential
- **If a patient sounds unwell from SACT toxicities, it is sensible to arrange oncological/haematological review or consider same day emergency care (SDEC) assessment in hospital**. If asking a GP or member of the primary health care team to review, it is essential to speak to them outlining what is required, what to look for and who to contact if further advice is needed. Life threatening emergencies to be seen in the emergency department (ED)
- **All licensed anticancer drugs have specific toxicities and the length of time that side effects can occur following completion of treatment varies**. Most cytotoxic chemotherapies can cause side effects for up to 6 to 8 weeks after the last treatment is given. The newer immunotherapies and targeted agents can cause side effects for many years after the last treatment is administered – please ask for details and/or advice from the acute oncology team, the site specific specialist team, the hospital pharmacy or see the Summary of Product Characteristics
- Please **see specific toxicity guideline** and manage the patient according to their condition, severity, concomitant medications and other medical problems
- **Aggressive management (including HDU/ITU) is appropriate if unstable, sometimes, even in the context of advanced cancer.** Escalate care if the patient is developing haemodynamic instability, drowsiness, multi-organ failure. Do not delay escalation. Discuss with the acute oncology team or oncologist on-call if unsure of appropriateness. Do not delay
- **Consider early involvement from the cancer site specific clinical nurse specialist (CNS) where appropriate**
- **Organisations should consider using a standard triage and assessment format, such as the UKONS Triage Tool, for the assessment of patients with cancer**
- **Assessment should include as standard the following questions:**
    - Is the patient on active treatment (including radiotherapy) at present or have they received SACT treatment previously?
    - Names of SACT drugs and last date of treatment (NB may be on tablets)?
    - Performance status (include frailty score if appropriate), general condition, ability to carry out normal function at home? Has this changed recently?
        - Eastern Cooperative Oncology Group: Performance Status
        - Karnofsky Performance Status

General Information and Management Principles Continued

- **It is important to ask about all SACT related toxicities/problems in addition to the initial complaint, as several occurring together elevate risk and need closer management**
- **Reversible toxicities and/or problems can be treated even in the presences of any DNACPR orders; decisions should be made on an individual basis.** Please discuss with acute oncology/haematology team or on call oncology/haematology consultant
- **Neutropenia can occur:**
  - **At any time during a course of certain SACT or up to 6 weeks after**
  - **With certain radiotherapy treatment**
  - **At any time in a patient with disease-related immunosuppression.**

Patients with a suspected neutropenic sepsis will require IV antibiotics within 1 hour of presentation for assessment; this should be managed as per guideline 12 on P.19.

ED/AMU Sepsis Screening & Action Tool: View PDF

- **Review concomitant medications and consider stopping** those that may affect renal function/ potentiate hypotension (e.g. ACE-inhibitors, diuretics) if unwell or hypotensive, and benefits outweigh the risks of doing so.
- **Establish intravenous access** or utilise indwelling lines if appropriately trained to do so, and hydrate according to clinical condition. Monitor fluid balance closely
- **Patients require daily clinical review and daily bloods may also be required** (watch for neutropenic sepsis/ dehydration). **Be aware that administering paracetamol/antipyretics to neutropenic patients may mask signs of sepsis**
- **Rectal examination**. Due to the risk of damage to rectal mucosa, it is recommended that in patients receiving SACT rectal examination is not performed. If it is deemed necessary to conduct rectal examination, this should be undertaken with caution
- **The patient's site-specific specialist team providing cancer treatment must be informed** of any admission/ assessment, as adjustments to the subsequent cycle may be required. If patient is in a clinical trial, the trials team should be contacted about the admission
- **If the patient is receiving radiotherapy, please inform the treatment centre to discuss continuation/delay**
- Often an acute illness is a point of transition in cancer care. Early treatment escalation planning including ceilings of care should be discussed with the patient, admitting clinician/patient's own oncologist/ haematologist
- **Consider the involvement of the palliative care team** for symptom control advice if the problem is disease related.

Always make sure that the Acute Oncology Team are informed of the patient's assessment and/or admission as soon as possible.

Immediate advice is available from the Acute Oncology Service or the 24-Hour Oncology on call rota.

WITHHOLD SACT, including oral therapy, until you have discussed with the Acute Oncology or Site Specific Team.

GUIDELINE 1.
Anaphylaxis/Allergic Reaction/Hypersensitivity
Requires IMMEDIATE medical assessment

Hypersensitivity or an allergic reaction is an inappropriate and excessive reaction to an allergen; severity ranges from mild allergy to severe systemic reactions leading to anaphylactic shock if left untreated.

Anaphylaxis is a severe, life-threatening, generalised, or systemic hypersensitivity reaction. It is characterised by rapidly developing, life-threatening problems involving: the airway (pharyngeal or laryngeal oedema) and/or breathing (bronchospasm with tachypnoea) and/or circulation (hypotension and/or tachycardia). In most cases, there are associated skin and mucosal changes.

Treat as an emergency according to Resuscitation Council Anaphylaxis Guidelines:
https://www.resus.org.uk/anaphylaxis/emergency-treatment-of-anaphylactic-reactions/

Questions:
- What treatment/drug is the patient receiving?
- Any known allergies?
- Cancer diagnosis/primary disease?
- Concurrent medications?

Examinations:
ABCDE approach, Clinical evaluation, history, physical examination, and review of observations.

Observations: Calculate and monitor NEWS score, ECG Cardiac monitoring.

Signs and symptoms:

Bronchospasm	Cough	Dyspnoea	Dizziness
Headache	Hypertension	Hypotension	Rash
Urticaria	Tachycardia	Rigors/chills	Arthralgia
Nausea, vomiting	Pruritus/itching	Myalgia, Asthenia	Swelling of tongue/throat

Differential diagnosis includes:

Medication reaction	Septic shock	Asthma
Cytokine release syndrome	Transfusion reaction	

If this occurs during administration of treatment - STOP infusion/transfusion immediately

Grade 1 (Green)
Mild transient reaction: intervention or infusion interruption not required

Grade 2 (Amber)
Intervention or infusion interruption indicated; all symptoms respond promptly to treatment. (E.g. antihistamines; add steroids IV/oral, IV Fluids)

Grade 3 (Red)
Prolonged signs and symptoms not rapidly responsive to medication and/or brief interruption of infusion or recurrence of symptoms following initial improvement

Grade 4 (Red)
Anaphylaxis – Airway, Breathing, Circulation problem – Life threatening consequences; urgent intervention required

- Treat reaction in line with local guidelines/policy
- Prophylactic medications indicated for 24 hours
- Telephone/review patient within 24 hours and ask patient to contact the 24-hour advice line if symptoms worsen.

Patients with a good response to initial treatment should be warned about recurrence of symptoms and in some circumstances be kept under observation for 24 hours. This includes the following:
- Severe reactions with slow onset
- Individuals with severe asthma or a severe asthmatic component
- Patients with a history of biphasic reactions
- Add drug details of infusion and amount infused.

Treat as an emergency according to Resuscitation Council Anaphylaxis Guidelines – Page 8 or follow this link:

- Patients who have had a suspected anaphylactic reaction should be treated and observed for at least 6 hours in a clinical area with facilities for treating ABC problems
- A senior clinician should review patient and a decision made about the need for further treatment or a longer period of observation
- Manage in accordance with trust local guidelines depending upon differential diagnosis
- Check that the patient is not neutropenic – **If present, this should be managed as per guideline 12 on P.19** - immediate antibiotics if sepsis suspected.

Always make sure that the Acute Oncology Team are informed of the patient's assessment and/or admission as soon as possible.

Immediate advice is available from the Acute Oncology Service or the 24-Hour Oncology on call rota.

WITHHOLD SACT, including oral therapy, until you have discussed with the Acute Oncology or Site Specific Team.

Resuscitation Council UK

GUIDELINES 2021

Anaphylaxis?

A = Airway **B** = Breathing **C** = Circulation **D** = Disability **E** = Exposure

Diagnosis

Look for:

- Sudden onset of **A**irway and/or **B**reathing and/or **C**irculation problems[1]
- And usually skin changes (e.g. itchy rash)

Call for help

- Ensure Ambulance or Resuscitation Team called
- Lie patient flat (with or without legs elevated)
  - A sitting position may optimise respiratory effort in respiratory distress
  - If pregnant, lie on left side

Give intramuscular (IM) adrenaline[2]

If no improvement:

- Repeat IM adrenaline every 5 min
- IV fluid bolus[3]

If ongoing treatment is required despite TWO doses of adrenaline:

- Ensure Ambulance or Resuscitation Team called
- Repeat IV fluid bolus
- Further IM adrenaline every 5 min
- Get expert help to start an IV adrenaline infusion

- Establish airway
- Give high flow oxygen
- Apply monitoring: pulse oximetry, ECG, blood pressure

1. Life-threatening problems

Airway
Swelling, hoarseness, stridor

Breathing
Rapid breathing, wheeze, fatigue, cyanosis, SpO_2 <94%, confusion

Circulation
Pale, clammy, low blood pressure, faintness, drowsy/coma

2. IM adrenaline

IM doses of 1 mg in 1 mL (1:1000) adrenaline

Adult and child >12 years:	500 micrograms IM (0.5 mL)
Child 6–12 years:	300 micrograms IM (0.3 mL)
Child 6 months to 6 years:	150 micrograms IM (0.15 mL)
Child <6 months:	100–150 micrograms IM (0.1–0.15 mL)

(Adrenaline IV to be given only by experienced specialists)

3. IV fluid bolus

Use crystalloid

Adults: 500–1000 mL
Children: 10 mL/kg

GUIDELINE 2.
Arthralgia/Myalgia

Urgent Initial Triage Assessment

Normally a symmetrical widespread joint pain but can also be associated with muscle pain (myalgia). Certain drugs can cause arthralgia, including: Taxanes, BRAF inhibitors, GCSF, Immunotherapies.

If the patient is receiving or has received immunotherapy please proceed to guideline 27 on P34.

Questions:

- Is there a cancer diagnosis/primary disease?
- Is the patient taking anticancer treatment at the moment or recently? If so what treatment and when did it stop?
- Has the patient taken anything for pain?
- Where is the pain? If not widespread then consider other causes of joint pain e.g. localised pain in isolated joint/ back/spine may be related to metastatic deposit and need investigation and discussion – think SPINE
- How long has the patient had the pain? Is the pain affecting what they can do?
- Has/is the patient receiving GCSF, filgrastim/pegfilgrastim injections? Some patients receiving GCSF may experience severe muscle pain commonly in the pelvic area, lower back and/or shoulders, which will usually improve after stopping GCSF. When was the last injection?
- Are there any comorbidities that may cause arthralgia/ myalgia e.g. Autoimmune Rheumatoid Arthritis or Systemic Lupus Erythaematosis
- Is the patient on any blood thinning drugs or steroids?
- Other medications such as fluroquinolones or antibiotics.

Examination: Clinical evaluation, history, physical examination, and review of observations.
Observations: Calculate and monitor NEWS score.
Investigations: Urgent FBC, U&Es and Ca^{2+}. TSH and Free T4, Cortisol, Blood Glucose, CK and ESR as initial assessment for Autoimmune Arthritis/Myositis. CRP measurement may also be useful.

Differential diagnosis:

Treatment related	Viral infection	Autoimmune Arthritis/ Myositis

- Discuss investigation and infection prevention with local microbiologist.

Identify: patients who have received/receiving systemic anti-cancer treatment or are at risk of disease related immunosuppression or a history of stem cell transplant, they may be myelosuppressed/ neutropenic and at risk of sepsis. If present, this should be managed as per guideline 12 on P.19, immediate antibiotics if sepsis suspected.

Grade 1 (Green)
Mild Pain - not interfering with daily activities

- You must check that the patient is not neutropenic if discharge home is being considered
- Reassure the patient that this is normal, generally nothing to worry about and associated with treatment
- Advise to observe temperature closely - if patient develops an abnormal temperature, they must phone 24-hour advice line immediately
- Review current analgesia and consider
- paracetamol, non-steroidal (with caution as may not then develop a temperature in response to infection) or opiate if pain severity merits it
- Heat - a heat pad, or regular warm baths. Advise patient to get plenty of rest and plan activities to include rest periods
- Telephone/review patient within 24 hours and ask patient to contact the 24-hour advice line if symptoms worsen.

Grade 2 (Amber)
Moderate pain - Interfering with some normal activities

- You must check that the patient is not neutropenic if discharge home is being considered
- Reassure the patient that this is normal, generally nothing to worry about and associated with treatment
- Advise to observe temperature closely - if patient develops an abnormal temperature, they must phone 24-hour advice line immediately
- Review current analgesia and consider
- paracetamol, non-steroidal (with caution as may not then develop a temperature in response to infection) or opiate if pain severity merits it
- Heat - a heat pad, or regular warm baths. Advise patient to get plenty of rest and plan activities to include rest periods
- Telephone/review patient within 24 hours and ask patient to contact the 24-hour advice line if symptoms worsen.

Grade 3 (Red)
Severe pain – and /or loss of ability to perform some activities

- Advice and support measures as Grade 1& 2
- You must check that the patient is not neutropenic if discharge home is being considered
- Review analgesia – consider codeine or opiate based or non-steroidal if not contraindicated, or neuropathic agent if appropriate
- Advise to observe temperature closely - if patient develops an abnormal temperature, they must phone 24-hour advice line immediately
- Telephone/review patient within 24 hours and ask patient to contact the 24-hour advice line if symptoms worsen.

Grade 4 (Red)
Bedridden or disabling

- Consider urgent admission for ongoing assessment and treatment
- Ensure the patient is not neutropenic
- Review analgesia – consider codeine or opiate based or non-steroidal if not contraindicated, or neuropathic agent if appropriate
- Seek specialist advice if pain is not settling.

Always make sure that the Acute Oncology Team are informed of the patient's assessment and/or admission as soon as possible.

Immediate advice is available from the Acute Oncology Service or the 24-Hour Oncology on call rota.

WITHHOLD SACT, including oral therapy, until you have discussed with the Acute Oncology or Site Specific Team.

GUIDELINE 3.
Bleeding and/or Bruising
Requires IMMEDIATE medical assessment

Bleeding can occur secondary to injury, disease, or as a side effect of treatment. It can be a life-threatening event if massive blood loss or spontaneous bleeding occurs.
Thrombocytopenia – is a reduction in the number of platelets in the blood. If platelet count is <50 bleeding and or bruising may occur with minor trauma. Intracranial haemorrhage is more likely if there is sepsis and a platelet count of < 20. In a non-septic patient, a platelet count of 10 or above may be adequate in the absence of additional risk factors for bleeding. Coagulation abnormalities – due to disease e.g. liver metastases or disseminated intravascular coagulation (DIC) or treatment e.g. anti-coagulation therapy.

Questions:
- Is there a cancer diagnosis/primary disease?
- Is the patient taking anticancer treatment at the moment or recently? If so, what treatment and when did it stop?
- Is the patient actively bleeding? Site of active bleeding? Injury related or spontaneous
- How much blood has the patient lost?
- Onset and duration – when did bleeding and/or bruising start and how long has it persisted?
- Have they had similar bleeding and /or bruising before?
- Allergies/ current medications? - Anticoagulants, aspirin, clopidogrel, NSAIDS, DOACs (new anticoagulants e.g. rivaroxaban /apixaban)
  NB Heparin can cause thrombocytopaenia
- Relieving factors – Is it stopped via direct pressure or other measures?
- Any history of trauma.

Examination: Clinical evaluation, history, physical examination, and review of observations.
Observations: Calculate and monitor NEWS score.
Investigations: Urgent FBC, U&Es, LFT. Consider group and cross match, coagulation screen, Anti-Xa level if on low molecular weight (LMW) heparin, as it can accumulate in the presence of renal failure. Fibrinogen if considering DIC.

Signs and symptoms:

Lightheaded	Clammy	Pallor
Thirst	Rash (petechial/ purpura/ punctate)	

Identify: Patients who have received/ receiving systemic anti-cancer treatment or are at risk of disease related immunosuppression or a history of stem cell transplant, they may be myelosuppressed / neutropenic and at risk of sepsis. If present, this should be managed as per guideline 12 on P.19, immediate antibiotics if sepsis suspected.

Consider:
- Haematological disorders - malignant and non-malignant can cause thrombocytopenia. Some patients, e.g. those with chronic lymphocytic leukaemia (CLL) or lymphoma may develop idiopathic thrombocytopenic purpura (ITP).
- Viral infection- e.g. parvovirus B19 as a cause of thrombocytopenia.
- Systemic anti-cancer treatment- patients who are receiving certain drugs are at risk of thrombocytopaenia

If present, these conditions should be managed according to approved guidelines.

Grade 1 (Amber)
Bleeding - mild self-limiting, controlled by conservative measures, ecchymosis, occult blood in secretions.
Bruising - petechiae or bruising in a localised or dependent area, with or without trauma

Grade 2 (Red)
Bleeding - loss of 1-2 units.
Bruising - moderate petechiae, purpura and/or generalised bruising, with or without trauma

Grade 3 (Red)
Bleeding - loss of 3-4 units. Bruising - generalised petechiae, purpura and/or bruising. New bruises, without significant trauma

Grade 4 (Red)
Life threatening haemorrhage. Massive bleeding loss of > 4 units

- Review blood results
- Manage neutropenia as per guideline 12 on P.19
- Discuss abnormalities with on call haematologist or oncologist
- Do not discharge a patient without prior discussion with on call haemato-oncolologist or oncologist
- Telephone/review patient within 24 hours and ask patient to contact the 24-hour advice line if symptoms worsen
- Advise patient regarding risks and signs of bleeding.

- Manage according to emergency department resuscitation guidelines
- Attention should be given to disease or treatment specific factors e.g. thrombocytopenia, advanced disease
- Consider stopping any contributing medication if safe to do so e.g. anti-coagulants /NSAIDS/antiplatelet drugs – discuss reversal of anti-coagulants with haematology
- All patients should be discussed with on call haemato-oncolologist and/or oncologist, who can provide further management advice
- Admit for support and monitoring - Consider critical care management
- Manage neutropenia as per guideline 12 on P.19.

Always make sure that the Acute Oncology Team are informed of the patient's assessment and/or admission as soon as possible.

Immediate advice is available from the Acute Oncology Service or the 24-Hour Oncology on call rota.

WITHHOLD SACT, including oral therapy, until you have discussed with the Acute Oncology or Site Specific Team.

GUIDELINE 4.
Chest Pain

Requires IMMEDIATE medical assessment

Pain may result from a wide range of causes, there is an urgent need to diagnose the cause of any patient presenting with chest pain to ensure that serious and life-threatening conditions are not missed.

Questions:

- Is there a cancer diagnosis/primary disease?
- Is the patient currently receiving 5FU/capecitabine?
- Does the patient have a history of angina, or other heart disease?
- Are there exacerbating/relieving factors, and characteristics of pain?
- Are there associated symptoms, e.g. SOB, syncope, oedema, palpitations?
- Consider - is this pain cardiac? – ESC Guidelines Chapter 6. Diagnosis and management of acute and subacute cardiovascular toxicity in patients receiving anticancer treatment

Examination: Clinical evaluation, history, physical examination, and review of observations.
Observations: Calculate and monitor NEWS score.
Investigations: Urgent FBC, U&Es, Coagulation screen, Cardiac markers/Troponin. Urgent ECG. Chest X-Ray. Consider ABG's, Wells score, D-Dimers.

Differential diagnosis:

Cardiac cause	Pulmonary embolism (PE)	Effusions
Chest infections	Disease progression	Indigestion/reflux

Identify: Patients within 6/52 of chemotherapy specifically patients currently receiving 5 fluorouracil (5FU) or capecitabine, which can cause coronary artery spasm. Patients may be taking these drugs orally at home or via continuous infusion. Other chemotherapy drugs/monoclonal antibodies can cause reduction in heart function, but this is not usually an acute presentation.

All cancer patients have an increased risk of pulmonary embolism.

Advise Urgent A&E assessment for all symptoms of chest pain

Action: Treat chest pain as 'Red' until proven to be non-cardiac/life threatening.

The aim is to exclude a life-threatening cause, which needs immediate treatment, from other causes of chest pain.

- **If PE strongly suspected and CTPA not possible within 1 hour, consider commencing treatment with LMWH (BTS PE guidance)**
- **Is the patient connected to an ambulatory intravenous infusion pump of 5 fluorouracil (SACT)? – arrange urgent disconnection by member of SACT team or clamp to stop infusion**
- **Is the patient taking oral SACT such as capecitabine? - If so, ensure patient does not continue with this medication**
- **These patients may also be myelosuppressed/neutropenic and at risk of sepsis. If present, this should be managed as per guideline 12 on P.19-20** - immediate antibiotics if sepsis suspected.

Admit for monitoring and on-going assessment and management in accordance with local trust guidelines.Consider SDEC or admission for investigation and management if associated with Abdominal pain or Nausea/vomiting.

Always make sure that the Acute Oncology Team are informed of the patient's assessment and/or admission as soon as possible.

Immediate advice is available from the Acute Oncology Service or the 24-Hour Oncology on call rota.

WITHHOLD SACT, including oral therapy, until you have discussed with the Acute Oncology or Site Specific Team.

GUIDELINE 5.
Constipation
Urgent Initial Triage Assessment

Irregular and infrequent or difficult evacuation of the bowels; can be a symptom of intestinal obstruction or diverticulitis.

Questions:
- Is there a cancer diagnosis/primary disease?
- Is the patient taking anticancer treatment at the moment or recently? If so what treatment and when did it stop?
- When did the patient's bowels/stoma move last? Are they passing wind?
- What is normal bowel habit? Any recent changes? N.B. loose runny stools could be overflow
- What medication are they taking and has there been any recent changes? Certain medication can cause constipation e.g. anti-emetics (5HT3 Antagonists), opioids, SACT including vinca-alkaloids
- What food and fluids have they been taking over last few days? Decreased fluid and/or food intake can be significant factors in constipation
- Is there any nausea or vomiting?
- Is there any abdominal pain? Is it getting worse?
- Are they passing water/urine normally?

Examination: Clinical evaluation, history, physical examination, and review of observations - PR Examination (caution in pancytopaenic patients). Presence and nature of bowel sounds. Rule out signs and symptoms of bowel obstruction.

N.B. constipation may be a presenting symptom of MSCC or hypercalcaemia. Ascites can often aggravate constipation – if present consider drainage.
Observations: Calculate and monitor NEWS score. Presence of bowel sounds.
Investigations: Urgent FBC, U&Es, CRP, Ca^{2+}, and LFT. Coagulation screen. Consider abdominal X-ray +- Erect Chest X-ray.

Differential diagnosis:

Drug related e.g. SACT, opiates, anti-emetics	Bowel obstruction/ileus secondary to disease or ascites
Hypercalcaemia	Recent Rectal Radiotherapy

Identify: Patients who have received/receiving SACT or are at risk of disease related immunosuppression or a history of stem cell transplant. These patients may be myelosuppressed / neutropenic and at risk of sepsis. If present, this should be managed as per guideline 12 on P.19, immediate antibiotics if sepsis suspected.

Grade 1 (Green)
Mild no bowel movement for 24 hours over pre-treatment normal and/or occasional or intermittent symptoms

Grade 2 (Amber)
Moderate, no bowel movement for 48 hours over pre-treatment normal and/or persistent symptoms limiting instrumental ADL.
If associated with pain or vomiting escalate to red

Grade 3 (Red)
No bowel movement for 72 hours over pre-treatment normal and/or severe = infrequent or no defecation may also be associated with straining nausea and loss of appetite

Grade 4 (Red)
Life threatening, no bowel movement over 96 hours and/or no bowel movement with symptoms of bowel obstruction - consider paralytic ileus or bowel obstruction

ACTION: Grade 1 and Grade 2
- Provide dietary advice including the importance of good fluid intake
- Review and consider stopping or changing constipating drugs
- Consider use of laxatives, faecal softener, or stimulant
- Telephone/review patient within 24 hours and ask patient to contact the 24-hour advice line if symptoms worsen or persist.

Always make sure that the Acute Oncology Team are informed of the patient's assessment and/or admission as soon as possible.

Immediate advice is available from the Acute Oncology Service or the 24-Hour Oncology on call rota.

WITHHOLD SACT, including oral therapy, until you have discussed with the Acute Oncology or Site Specific Team.

- Review medication and stop/ change /avoid constipating drugs e.g. opiates, certain anti- emetics
- Provide dietary advice including the importance of good fluid intake
- Consider SDEC or admission for investigation and management if associated with:
  - Abdominal pain
  - Nausea/vomiting
- Consider nil by mouth instructions and arrange surgical review if indicated.

Patients may also have:
- Severe abdominal pain and/ or distension
- Nausea and Vomiting
- Faecal smelling vomit
- Rigid abdominal distension
- History of abdominal surgery

Admit for:
- Further management and investigation
- CT Scan
- Senior medical and/or surgical review
- I.V. access and fluid replacement
- Consider nil by mouth instructions and naso-gastric tube placement
- Analgesia
- Emesis control
- Monitoring.

GUIDELINE 6.
Diarrhoea
Urgent Initial Triage Assessment

A disorder characterised by frequent and watery bowel movements. Grading is relative to normal baseline function.
If the patient is receiving/received immunotherapy, please proceed to Guideline 21 P28.

Questions:
- Is there a cancer diagnosis/primary disease?
- Is the patient taking anticancer treatment at the moment or recently? If so what treatment and when did it stop?
- Is the patient receiving radiotherapy to the abdomen or pelvis and when was their last treatment?
- How many stools a day above normal amount? Or how much stoma output is there above normal amount? Have they had any nocturnal movements? For how many days have they had diarrhoea? Is it interfering with activities of daily living?
- Are stools/stoma outputs formed, loose or watery? Any faecal incontinence or urgency? Any blood or mucous in the stool?
- Is there any abdominal pain e.g. cramping pains coming in waves?
- Is the patient able to eat and drink normally? Are they passing plenty of clear urine?
- Does the patient have any other SACT related toxicities, e.g. mouth ulcers, mucositis, nausea/vomiting, red hands/feet?
- Has the patient taken any antibiotics recently or been in hospital recently?
- What medication have they taken? Have they taken any laxatives or anti-sickness medication or any anti-diarrhoeal medication in the last 24 hours? If so, what?

Examination: Clinical evaluation, history, physical examination, and review of observations.
Observations: Calculate and monitor NEWS score.
Investigations: Urgent FBC, U&Es, Mg^{2+}, LFT, CRP, phosphate. CDT screen. Consider checking total CO2 in serum or blood gases (arterial or venous) for pH/ bicarbonate with severe diarrhoea and potential bicarbonate loss. Stool sample for C&S/ova/cysts/parasites to rule out infective causes of diarrhoea-e.g. Campylobacter/salmonella, for viral causes. Consider Abdominal X-ray. Do NOT assume this is infective it is most likely to be drug induced in this group of patients.

Differential diagnosis:

Graft versus host disease in stem transplant patients – contact transplant haematologist **urgently**.	**Secondary to SACT** e.g. 5FU or CAPECITABINE, IRINOTECAN, any TKI, please see drug **SPC/local** guideline for further management. Consider **DPD deficiency**.	**Gastrointestinal symptoms due to IMMUNOTHERAPY- proceed to guideline 21 on page 30 for further guidance.**
Infection	**Constipation** with overflow	**Radiotherapy** – secondary to treatment

Identify: Patients who have received/receiving systemic anti-cancer treatment or are at risk of disease related immunosuppression or a history of stem cell transplant. These patients may be myelosuppressed / neutropenic and at risk of sepsis. If present, this should be managed as per guideline 12 on P.19, immediate antibiotics if sepsis suspected.

Grade 1 (Amber)
Increase up to 3 bowel movements a day over pre-treatment baseline or mild increase in ostomy output

Grade 2 (Amber)
Increase up to 4-6 episodes a day over baseline or moderate increase in ostomy output or nocturnal movement or moderate cramping

Grade 3 (Red)
Increase up to 7-9 episodes a day or severe increase in ostomy output and/or any of the following: Incontinence/ Severe cramping/ Bloody diarrhoea

Grade 4 (Red)
Increase > 10 episodes a day or grossly bloody diarrhoea

Review medication WITHHOLD DRUGS including any SACT that may be contributing until Acute Oncology or Site Specific team review.

ESCALATE TO RED for any of the following:
- Grade 2 and receiving or received immunotherapy treatment.
- Grade 2 for >24 hours despite anti-diarrhoeal medication
- Other symptoms e.g. temperature, nausea/vomiting, mouth ulcers, or clinical concerns
- Haematology patients
- **Oncology patients** - Consider loperamide initially. If ineffective consider Codeine Phosphate. Reduce and then stop antidiarrheal after 12-24 hours free of diarrhoea.
- Review any other SACT toxicities according to guidelines.
- Review all medications and stop prokinetics and laxatives once constipation with overflow has been ruled out. Avoid domperidone and metoclopramide anti-emetics.

- Patients with grade 3 or 4 diarrhoea require specialist secondary care to manage symptoms - IV resuscitation may be required. They should attend urgently for further assessment and active management
- **WITHHOLD SACT** until Acute Oncology Team review and review all other medication as they may be contributing – if receiving Capecitabine or 5FU consider **DPD** deficiency
- If receiving or received **immunotherapy** - follow guideline 21 on page 28
- **Haematology patients – discuss with haematology team, urgently.**

Always make sure that the Acute Oncology Team are informed of the patient's assessment and/or admission as soon as possible.

Immediate advice is available from the Acute Oncology Service or the 24-Hour Oncology on call rota.

WITHHOLD SACT, including oral therapy, until you have discussed with the Acute Oncology or Site Specific Team.

GUIDELINE 7.
Dyspnoea/Shortness Of Breath
Requires IMMEDIATE medical assessment

Difficulty breathing may include symptoms such as wheezing, choking, and a feeling of not getting enough air into lungs. Dyspnoea indicates a conscious appreciation of increased work done during breathing; principal factors in SOB are an increased work of breathing, increased ventilatory drive, impaired muscle function. If recieving or recieved Immunotherapy go to guideline 24 on P31.

Questions:
- Is there a cancer diagnosis/primary disease?
- Is the patient taking anticancer treatment at the moment or recently? If so what treatment and when did it stop?
- Cardinal questions related to breathlessness including history of underlying chest complaint, asthma, COPD, ischaemic heart disease
- Is there any chest pain?
- What is the patient's current medication?
- Is there a history of dyspnoea? What is their normal level? Is this a new symptom?
- Are there any exacerbating/relieving factors?
- Is there any new neck or arm swelling /distended veins - assess for signs of Superior vena cava obstruction (SVCO)
- Is there any pain or swelling in legs? – Assess for signs of DVT.

Examination: Clinical evaluation, history, physical examination, and review of observations.

Observations: Calculate and monitor NEWS score.

Investigations: **Urgent** FBC, U&Es, Sputum and viral throat swab for C&S, blood cultures and CRP if pyrexial. ECG and CXR. Coagulation screen. Consider haematinics, ABGs and troponin. CTPA/VQ investigations to rule out pulmonary embolism, pneumonitis. Consider D-dimer. Serum β-D-glucan/galactomannan for fungal/Pneumocystis investigation in neutropenic/lymphopenic patients. If TB possible then test respiratory specimens for Mycobacterium tuberculosis. Consider GeneXpert PCR for TB in selected patients.

Differential diagnosis:

Pulmonary embolism (PE)	Cancer progression	New cancer diagnosis
Pleural effusion	Chest Infection	Consolidation
SVCO	Cardiac ischaemia	Anaemia
Pneumonitis	Lymphangitis	Viral Infection such as Covid or Influenza

Exacerbation of respiratory condition e.g. Asthma

Identify: Patients who have received/receiving systemic anti-cancer treatment or are at risk of disease related immunosuppression or a history of stem cell transplant. These patients may be myelosuppressed/ neutropenic and at risk of sepsis. If present, this should be managed as per guideline 12 on P.19, immediate antibiotics if sepsis suspected.

Grade 1 (Amber)
New onset dyspnoea with moderate exertion

- Assess for signs of sepsis: such as productive cough, pyrexia, and /or generally unwell - escalate to **Red** as appropriate
- Anaemia – consider correction
- A history of underlying chest complaints e.g. asthma, COPD: advise patients around usual management of exacerbations and advice to discuss with GP or health professional managing this condition
- You must check that the patient is not neutropenic prior to discharge
- Telephone/review patient within 24 hours and ask patient to contact the 24-hour advice line if symptoms worsen or persist.

Grade 2 (Red)
New onset dyspnoea with minimal exertion

Grade 3 (Red)
New onset dyspnoea at rest

Grade 4 (Red)
Life threatening symptoms requiring urgent intervention

- Ensure the patient is not neutropenic – If present, this should be managed as per guideline 12 on P.19 - immediate antibiotics if sepsis suspected
- Consider admission if evidence of:
  - Desaturation
  - Infection
  - Other chemotherapy toxicities
- For management of:
  - SVCO - see guideline 42 on P.50
  - Pleural effusion - see guideline 39 on P.47
  - Carcinomatous Lymphangitis – see guideline 31on P.38
  - Pneumonitis may be drug or radiation related:
    - Radiation pneumonitis - see guideline 41 on P.49
    - Immunotherapy induced pneumonitis – see guideline 24 on P31
- Manage all other causes in accordance with local or national guidelines depending upon differential diagnosis:
- Asthma- BTS Guideline
- COPD - BTS Guideline
- Consider possible infectivity of patient and implement respiratory isolation precautions as appropriate.

Always make sure that the Acute Oncology Team are informed of the patient's assessment and/or admission as soon as possible.

Immediate advice is available from the Acute Oncology Service or the 24-Hour Oncology on call rota.

WITHHOLD SACT, including oral therapy, until you have discussed with the Acute Oncology or Site Specific Team.

GUIDELINE 8.
Fatigue

Urgent Initial Triage Assessment

Fatigue is a subjective unpleasant symptom, which incorporates total body feelings ranging from tiredness not relieved by rest or sleep to total exhaustion creating an unrelenting overall condition that interferes with the individual ability to function to their normal capacity.

Questions:
- Is there a cancer diagnosis/primary disease?
- Is the patient taking anticancer treatment now or recently? If so what treatment and when did it stop?
- How many days have they been feeling like this?
- Do they have any pain? Have they taken any painkillers? If so, what?
- Are they able to eat and/or drink?
- Are they short of breath?
- Are they able to mobilise – ambulant – performance status? ECOG performance status
- Are they passing usual amounts of urine and are bowels functioning normally?
- Patient mood? Has their mood changed recently? Are they receiving any psychological support?

Examination: Clinical evaluation, history, physical examination, and review of observations.

Observations: Calculate and monitor NEWS score.

Investigations: Urgent FBC, U&Es, group and save, Ca^{2+}, CRP, blood glucose, consider blood cultures.

Differential diagnosis:

Immunotherapy induced endocrinopathy	Patient entering the dying phase	Hormone disturbance e.g. thyroid dysfunction
Side effect of treatment	Anaemia	Disease progression
Depression/psychological problems		

Identify: Patients who have received/receiving systemic anti-cancer treatment or are at risk of disease related immunosuppression or a history of stem cell transplant. These patients may be myelosuppressed / neutropenic and at risk of sepsis. If present, this should be managed as per guideline 12 on P.19, immediate antibiotics if sepsis suspected.

Grade 1 (Green)
Fatigue relieved by rest

- Check all blood results prior to discharge and escalate any abnormalities:
  - Neutropenia/pancytopenia
  - Endocrine disturbance in immunotherapy
- Advice:
  - Encourage diet and fluids
  - Regular exercise
- Consider psychological support measures
- Telephone/review patient within 24 hours and ask patient to contact the 24-hour advice line if symptoms worsen or persist.

Grade 2 (Amber)
Fatigue not relieved by rest Limiting instrumental ADL

- Check all blood results prior to discharge and escalate any abnormalities:
  - Neutropenia/pancytopenia
  - Endocrine disturbance in immunotherapy
- Advice:
  - Encourage diet and fluids
  - Regular exercise
- Consider psychological support measures
- Telephone/review patient within 24 hours and ask patient to contact the 24-hour advice line if symptoms worsen or persist.

Grade 3 (Amber)
Fatigue not relieved by rest, Limiting self-care ADL

- Check all blood results and escalate any abnormalities:
  - Neutropenia/pancytopenia
  - Endocrine disturbance in immunotherapy
- Escalate if evidence of:
  - Dehydration
  - Infection
  - Poor oral intake
  - SACT toxicities
- Consider disease progression.
- Telephone/review patient within 24 hours and ask patient to contact the 24-hour advice line if symptoms worsen or persist.

Grade 4 (Red)
Bedridden or disabling

- Check all blood results and act on abnormalities e.g.
  - Neutropenia/pancytopenia, guideline 12 P.19
  - Endocrine disturbance in immunotherapy, guidelines 18,19,20 on Pages 27, 28,29
- Assess for SDEC or admission if clinically indicated for:
  - Monitoring and continued assessment
  - Management according to symptoms/blood results
  - Contact the acute oncology team for advice on continuing anti-cancer therapy
  - Consider disease progression.

Always make sure that the Acute Oncology Team are informed of the patient's assessment and/or admission as soon as possible.

Immediate advice is available from the Acute Oncology Service or the 24-Hour Oncology on call rota.

WITHHOLD SACT, including oral therapy, until you have discussed with the Acute Oncology or Site Specific Team.

GUIDELINE 9.

Metastatic Spinal Cord Compression (MSCC)/ Cauda Equina Syndrome

Requires IMMEDIATE medical assessment

MSCC is due to a pathological vertebral body collapse or direct tumour growth causing compression of the spinal cord. Irreversible neurological damage can ensue with resulting paraplegia. Early diagnosis and treatment is essential – think SPINE.

Identify:

- Patients with known diagnosis/history of bone metastases, or suspected cancer. Please note to rule out spinal cord compression, whole spine MRI scan must be performed within 24 hours of clinical suspicion
- **Examination:** Clinical evaluation, history, physical examination, and review of observations Full neurological assessment and on-going review
- **Observations:** Calculate and monitor NEWS score
- **Investigations:** Urgent MRI whole spine within 24 hours of clinical suspicion. Urgent FBC, U&Es, LFT, bone profile Consider Group & Save and /or clotting screen.
- If new diagnosis of suspected cancer arrange CTCAP and appropriate tumour markers to aid diagnosis
- If considering myeloma/plasmacytoma then Immunoglobulins/electrophoresis, serum light chains
- If considering lymphoma, then LDH.

Key signs/symptoms:

- The patient may or may not have a cancer diagnosis/ primary disease
- Back pain that is multi segmental or band like and or local spinal tenderness
- Escalating pain, which is poorly responsive to treatment, including medication
- Different character or site to previous symptoms.
- Funny feeling, odd sensations in arms and/or legs (heavy legs), pins and needles
- Lying flat increases back pain
- Pain, worsening on coughing /sneezing or on straining.
- Agonising pain causing anguish and despair
- Gait disturbance, unsteadiness, especially on stairs (not just limp)
- Sleep grossly disturbed due to pain being worse at night.
- Established motor/sensory/bladder / bowel disturbances incontinence are late signs.

If you have suspicion of MSCC then contact the Acute Oncology team and/or MSCC coordinator for advice regarding management.

Identify: Patients who have received/receiving systemic anti-cancer treatment or have a history of stem cell transplant are at risk of disease related immunosuppression. These patients may be myelosuppressed / neutropenic and are at risk of sepsis. If present, this should be managed as per guideline 12 on P.19, immediate antibiotics if sepsis suspected.

Grade 1 (Amber)
Spinal pain suggestive of spinal metastases

- Rule out spinal cord compression – full neurological examination
- Discuss with the Acute Oncology Team and/or MSCC Coordinator
- MRI whole spine to be performed within 1 week of clinical suspicion
- Advise on pain control
- DO NOT discharge if the patient has spinal metastases and you have any concerns that this is MSCC
- If you do discharge the patient: Telephone/review patient within 24 hours and ask patient to contact the 24-hour advice line if symptoms worsen/persist.

Grade 2 (Red)
Mild or moderate sensory loss, moderate paraesthesia, mild weakness with no loss of function

Grade 3 (Red)
Severe sensory loss, paraesthesia or weakness that interferes with function

Grade 4 (Red)
Paralysis

- Rule out spinal cord compression/cauda equine - Urgent MRI whole spine
- Treat as unstable spine until MRI results reported and oncology/neurosurgical assessment and spinal stability documented
- Assess for SDEC or admission if clinically indicated

Note: need for caution in patients with no previous known malignancy and lymphoma suspected as steroids might cause rapid resolution of the tumour, which may make histological diagnosis very difficult. If possible, steroids should be avoided before biopsy if lymphoma suspected.

- Commence:
  - Dexamethasone 16mg stat followed by 8mg BD + gastric protection
  - Analgesia
  - Thromboprophylaxis
  - Bowel care
- Contact MSCC coordinator or oncologist on call to assess and plan treatment – radiotherapy or surgery - if required
- All patients should start definitive treatment within 24 hours once MRI confirms a diagnosis of MSCC - impending cord compression or unstable spine
- See your local/network agreed algorithm for more detailed local guidance including contact details for the specialist team
- Please consider Cancer of Unknown Primary (CUP), guideline 40 P.48 for patients who present with metastatic disease without a previous diagnosis of cancer.

For further information see NICE Metastatic Spinal Cord Compression guideline.

Always make sure that the Acute Oncology Team are informed of the patient's assessment and/or admission as soon as possible.
Immediate advice is available from the Acute Oncology Service or the 24-Hour Oncology on call rota.
WITHHOLD SACT, including oral therapy, until you have discussed with the Acute Oncology or Site Specific Team.

GUIDELINE 10.
Mucositis/Stomatitis/Oesophagitis

Urgent Initial Triage Assessment

An inflammatory reaction of the mucous lining of, the upper gastrointestinal tract from mouth to stomach (mouth, lips, throat), and surrounding soft tissues.

Questions:

- Is there a cancer diagnosis/primary disease?
- Is this a haematology patient? If so, please contact haematology team as soon as possible
- Is the patient taking anticancer treatment at the moment or recently? If so what treatment and when did it stop?
- Is there evidence of super added infection? Does the patient have any blisters, ulcers, or white patches on tongue/ lips mouth?
- Is there any pain or bleeding from the mouth?
- Are they able to eat and/or drink?
- Does eating or swallowing make the pain worse?
- Are they using any mouthwashes, painkillers or other treatments within the mouth?
- Do they also have diarrhoea?
- Is there any dryness, pain, inflammation of genitals and/or rectum – consider rectal mucositis
- Are they passing usual amounts of urine?
- Have they had any recent radiotherapy treatment to the head and/or neck?

Examination: Clinical evaluation, history, physical examination, and review of observations.
Observations: Calculate and monitor NEWS score.
Investigations: Urgent FBC, U&Es, LFT, CRP, Lactate and Blood Cultures (**Oncology patients** - consider the need for pathology investigations in grade 1 and 2 presentations on an individual basis and in light of any other presenting symptoms or risk factors).

Differential diagnosis:

Radiotherapy reaction	SACT related
Viral/bacterial infection	Candidiasis

Identify: Patients who have received/receiving SACT or are at risk of disease related immunosuppression or a history of stem cell transplant (PBSCT) or receiving radiotherapy head and neck/upper GI tract. These patients may be myelosuppressed /neutropenic and at risk of sepsis. If present, this should be managed as per guideline 12 on P.19, immediate antibiotics if sepsis suspected.

Grade 1 (Green)
Painless ulcers, erythema, or mild soreness, able to eat and drink normally

Grade 2 (Amber)
Painful ulcers and /or erythema, mild soreness but able to eat and drink normally

Grade 3 (Red)
Painful erythema, and difficulty with eating and drinking

Grade 4 (Red)
Significant pain, minimal intake and /or reduced urinary output

Consider the following mouth care advice:

- Ice chips for symptomatic relief
- If painful: an anti-inflammatory mouthwash
- Consider the use of a mucosal barrier gel
- Analgesia: use care if advising antipyretic as it may mask signs of neutropenic sepsis. Consider dispersible or liquid preparations
- Assess for thrush/candidiasis and arrange for an antifungal agent to be prescribed if required
- You must check that the patient is not neutropenic prior to discharge
- Telephone/review patient within 24 hours and ask patient to contact the 24-hour advice line if symptoms worsen or persist

MASCC guidelines

- Check all blood results and act on abnormalities e.g. Neutropenia or pancytopenia
- Assess for evidence of:
  - Dehydration
  - Infection
  - Poor oral intake
  - Other SACT toxicities
- If receiving Capecitabine or 5FU consider **DPD** deficiency
- Assess for SDEC or admission if clinically indicated
- Consider IV access and fluid replacement
- Analgesia, consider:
  - Dispersible analgesics e.g. soluble paracetamol /co codamol
  - If no improvement, consider opiates
  - Consider S/C syringe driver for severe pain
- Assess for thrush/ candidiasis and arrange for an antifungal agent to be prescribed if required
- Consider referral to the SALT team and dietician for management support
- Consider the following mouth care advice:
  - Ice chips for symptomatic relief
  - If painful: anti-inflammatory mouthwash
  - Consider the use of a mucosal barrier gel.

Always make sure that the Acute Oncology Team are informed of the patient's assessment and/or admission as soon as possible.

Immediate advice is available from the Acute Oncology Service or the 24-Hour Oncology on call rota.

WITHHOLD SACT, including oral therapy, until you have discussed with the Acute Oncology or Site Specific Team.

GUIDELINE 11.
Nausea

Urgent Initial Triage Assessment

Nausea is the sensation of being about to vomit. Acute chemotherapy induced nausea usually presents within the first 24 hours of receiving treatment. Delayed nausea may present any time after the first 24 hours and continues for up to 6 or 7 days after treatment.

Questions:

- Is there a cancer diagnosis/primary disease? What is the extent of the disease? – e.g. known metastases to brain, bone, liver etc
- Is the patient taking anticancer treatment at the moment or recently? If so what treatment and when did it stop?
- How often are they feeling sick/nauseous?
- Have they been sick/vomited?
- Assess bowel movements, any symptoms that suggest constipation? Any diarrhoea? Bowel obstruction?
- What food and fluids have they been taking over last few days?
- Any evidence of reflux/gastritis?
- Any signs of dehydration e.g. decreased urine output, fever, thirst, dry mucous membranes etc
- Any neurological symptoms? e.g. headache, visual disturbance, dizziness?
- Do they have any abdominal pain? Is this a new symptom?
- Are they taking any medication and has there been any recent change?
- Are they currently receiving radiotherapy? (Especially to brain, liver, GI Tract).

Examination: Clinical evaluation, history, physical examination, and review of observations.
Observations: Calculate and monitor NEWS score.
Investigations: Urgent FBC, U&Es, LFT, Ca2+, and CRP. (N.B. consider the need for pathology investigations in grade 1 and 2 presentations on an individual basis and in light of any other presenting symptoms or risk factors.)

Differential diagnosis:

Medication related e.g. SACT	Hypercalcaemia	Gastrointestinal infection
Gastric stasis	CNS disease	Disease related

Identify: Patients who have received/receiving systemic anti-cancer treatment or are at risk of disease related immunosuppression or radiotherapy (especially to brain, abdomen, GI Tract) or a history of stem cell transplant. These patients may be myelosuppressed / neutropenic and at risk of sepsis. If present, this should be managed as per guideline 12 on P.19, immediate antibiotics if sepsis suspected.

Grade 1 (Green)
Able to eat and drink with a reasonable intake

- Review prescribed antiemetic medication make sure dose / route / frequency and formulation are appropriate and assess patient compliance and understanding
- Fully investigate cause:
  - Disease related e.g. brain or liver metastases, electrolyte imbalance, and obstruction
  - Medication related e.g.. SACT, opiates etc
- When cause has been clearly identified, change antiemetic in line with local policy directions
- Advise self-help measures: Macmillan information and support- coping with side effects
- Telephone/review patient within 24 hours and ask patient to contact the 24-hour advice line if symptoms worsen or persist.

Grade 2 (Amber)
Oral intake decreased without significant weight loss, dehydration, or malnutrition

Grade 3 (Red)
Inadequate or no oral caloric and/or fluid intake

- Assess for SDEC or admission if clinically indicated
- IV fluids and electrolyte replacement as appropriate
- Fully investigate cause:
  - Disease related e.g. brain or liver metastases, electrolyte imbalance, and obstruction
  - Medication related e.g. SACT, opiates etc
- Prescribe antiemetic as appropriate to cause in line with local policy
- Consider alternative route of administration of antiemetics e.g. syringe driver especially if associated with vomiting.

Always make sure that the Acute Oncology Team are informed of the patient's assessment and/or admission as soon as possible.

Immediate advice is available from the Acute Oncology Service or the 24-Hour Oncology on call rota.

WITHHOLD SACT, including oral therapy, until you have discussed with the Acute Oncology or Site Specific Team.

GUIDELINE 12.
Suspected Neutropenic Sepsis
Requires IMMEDIATE medical assessment

Immediately: Take bloods and administer 1st IV antibiotics (DON'T wait for FBC result)

THINK SEPSIS 6. Patients can present with a wide range of symptoms these can include:

Early signs of SIGNIFICANT sepsis - YES

- History of temperature at home or
- Temp > 38^{0}C or < 36^{0}C or
- HR > 90 and /or RR > 20 or Generally unwell. Infective symptoms; Shivering/rigors; Diarrhoea.

Door to needle time for first antibiotics should be less than one hour.

ASSUME NEUTROPENIC SEPSIS UNTIL PROVEN OTHERWISE

1st line IV antibiotics in neutropenic sepsis as per NICE guideline:

- **Beta lactam monotherapy with piperacillin with tazobactam as initial empiric antibiotic therapy for patients with suspected neutropenic sepsis if there are no patient-specific or local microbiological contraindications**
- Patients with penicilin allergy – refer to local guidelines
- Avoid aminoglycoside therapy in patients who have received platinum based SACT in the last week
- Consider adding vancomycin /teicoplanin if CVAD is the suspected focus of infection.

Questions: THINK SEPSIS SIX TRIGGER QUESTIONS – Does the patient look sick or has NEWS or similar triggered? Do they have any sepsis six red flag?

- When was the last SACT given?
- Is there a history of transplant?
- Is there a history of myelosuppression or known bone marrow failure? This can be due to a haematological malignancy, bone marrow transplant or high dose radiotherapy to pelvis or sternum
- Is there a history of previous neutropenic episodes?
- Focus infection screening questions to identify potential source
- Patients may appear well initially but if untreated can rapidly progress to septic shock + death. Early diagnosis will normally prevent death
- Neutrophil count below 0.5 x 10^9 /L OR neutrophil count awaited and SACT within the past six weeks, OR neutrophil count below 1.0 x 10^9 /L and expected to fall, OR bone marrow transplant patient.

Investigations: FBC, U&Es, LFTs include albumin, Coagulation screen, G+S, Ca^{2+}, PO^{4-}, Mg^{2+}, Urate, CRP, and Lactate, peripheral and central line blood cultures. Consider ABG and blood or plasma glucose.

- Calculate and monitor NEWS score
- Calculate MASCC score – if no evidence of sepsis and low risk score consider Low Risk Febrile Neutropenic pathway Urinalysis and monitor urine output. FULL SEPTIC SCREEN – consider sputum and stool samples Consider: throat swab, central line swab, wound swab CXR and consider ECG if clinically indicated.

Examination: Clinical evaluation, history, physical examination, and review of observations Full history (consider current or recent SACT) + examination If SACT infuser connected – stop it.

Symptoms: The progression of infection in neutropenic patients can be rapid, and neutropenic patients with early bacterial infections cannot be reliably distinguished from non-infected patients at presentation.

- If the patient continues to deteriorate despite initial treatment their condition should be discussed urgently with a senior clinician
- Subsequent treatment should occur in an environment where appropriate skills and expertise are available
- The patient should be closely monitored, and the patient's risk of septic complications frequently reassessed using a validated risk scoring system (NICE 2020).

Assess the patient's risk of septic complications according to NICE guidelines, MASCC score and LRFN pathway.

Discharge only once if senior clinician happy and if:

- Low risk
- Physiologically stable
- When co-morbidity treated
- Neutropenic sepsis advice has been reinforced
- Arrange for next day review as per local guidelines.

- **SEPSIS SIX - Sepsis Screening and Action Tool**
- **MASCC score link**
- **LRFN pathway example**

Always make sure that the Acute Oncology Team are informed of the patient's assessment and/or admission as soon as possible.

Immediate advice is available from the Acute Oncology Service or the 24-Hour Oncology on call rota.

WITHHOLD SACT, including oral therapy, until you have discussed with the Acute Oncology or Site Specific Team.

GUIDELINE 13.
Skin Rash

Urgent Initial Triage Assessment

Skin rash can be a side effect of:

- **Systemic Anti-Cancer Therapy**: Rash can be frequent and sometimes severe with:
  - Immunotherapies – see guideline 26 P.33
  - IV antibodies e.g. panitumumab/cetuximab
  - 5-FU/capecitabine/sunitinib
  - Targeted- agents: EGFR antagonists, BRAF and MEK inhibitors (see guideline 14 P.21)
- **Radiotherapy**- radiation toxicity see guideline 15 P.22
- **Graft versus host disease** in a patient who has undergone allogeneic stem cell transplant (**Contact haematology team**).

Questions:

- Is there a cancer diagnosis/primary disease?
- Is the patient taking anticancer treatment at the moment or recently? If so what treatment and when did it stop? Is skin rash a commonly associated and sometimes serious toxicity of their treatment, please see specific DRUG INFORMATION SHEET
- Have they received immunotherapy proceed to guideline 26 P.33
- Have they received oral targeted agents: EGFR antagonists, BRAF and MEK inhibitors; see guideline 14 P.21
- Have they received radiotherapy recently: see guideline 15 on P.22
- Have they had a stem cell/ bone marrow transplant? If yes contact the haematology team
- If the patient has received 5FU, Capcitabine: see guideline 16 on P.23
- Are they otherwise well? Does the patient have any signs of infection e.g. pain, swelling, pustules, fever, discharge?
- Has the patient recently started any other medication including antibiotics?
- Does the patient have a history of skin complaints?
- Where is the skin rash, what % BSA does it cover and what does it look like?
- Does the rash itch? Itch only, consider liver/kidney problems/ dry skin/ allergy.
- Has the patient been in recent contact with infectious disease e.g. shingles/chicken pox?
- Does the patient have any other SACT toxicity related symptoms, if so, please see symptom specific guideline.

Examination: Clinical evaluation, history, physical examination, and review of observations.
Observations: Calculate and monitor NEWS score.
Investigations: Urgent FBC, U&Es, LFT, CRP, blood cultures if signs of systemic sepsis.

Differential diagnosis:

Side effect of medication	Allergic reaction
Infection e.g. shingles/ impetigo	Thrombocytopenia

Illness e.g. cellulitis

Identify: Patients who have received/receiving systemic anti-cancer treatment or receiving radiotherapy or are at risk of disease related immunosuppression or a history of allogeneic stem cell transplant. These patients may be myelosuppressed / neutropenic and are at risk of neutropenic sepsis and/or thrombocytopenia due to reduced marrow production or marrow infiltration and/or graft versus host disease: If present, this should be managed as per guideline 12 on P.19, immediate antibiotics if sepsis suspected.

Grade 1 (Green)
Rash covering <10% BSA, Macular/Papular eruption

- Provide appropriate skin care advice and emphasise the importance of skin care regimen -See P 22
- Treat with emollient creams and antihistamines if required
- Advice to keep nails short
- Ask patient to contact 24-hour advice line if symptoms worsen or persist.

Grade 2 (Amber)
If any of the following are present:

- Pruritus, or Purpura or burning tightness.
- Rash covering 10 -30% BSA.
- Affecting ADL or sleep.

- Check all blood results and act on abnormalities
- Treat symptomatically as grade 1 and consider additional topical or oral steroids
- Telephone/review patient within 24 hours ask patient to contact the 24-hour advice line if symptoms worsen/ persist.

Grade 3 (Red)
If any of the following are present:

- Pruritic symptoms >30% skin surface
- Generalised
- Exfoliative
- Ulcerative
- Bullous dermatitis
- Spontaneous bleeding or signs of associated infection.

Grade 4 (Red)
Life threatening

- Check all blood results and act on abnormalities
- For unusual, severe, or persistent rash, particularly if the patient is unwell –urgent referral to dermatology
- Assess for SDEC or admission if clinically indicated
- Urgent admission if symptoms suggestive of Steven Johnson Syndrome or Toxic Epidermal Necrolysis
- Analgesia, fluid balance monitoring and skin care support and advice
- Determine cause and treat appropriately, this may include I.V. / oral or topical steroids.

Always make sure that the Acute Oncology Team are informed of the patient's assessment and/or admission as soon as possible.

Immediate advice is available from the Acute Oncology Service or the 24-Hour Oncology on call rota.

WITHHOLD SACT, including oral therapy, until you have discussed with the Acute Oncology or Site Specific Team.

GUIDELINE 14.
Skin Toxicities: Targeted therapy related (Papulopustular rash)

Newer targeted anticancer therapies, particularly EGFR antagonists, BRAF, MEK and MTOR inhibitors, are frequently associated with skin toxicities, which are often seen in particular patterns and at different stages of treatment.

- **Papulopustular ("acneiform") rash**: predominately affects the scalp, face and upper trunk. Pruritus, irritation and pain may also be present
- **Xerosis ("dry skin")**: usually develops gradually and may present with eczema and/or fissuring
- **Nail changes**: include paronychia, onycholysis, splinter haemorrhages, and nail fold pyogenic granulomas
- **Hand-foot skin reaction**: dysaesthesia and paraesthesia can progress to localised, tender lesions, which may be bullous and severe. More common in plantar, pressure sites, heels and distal digits. Evolves to hyperkeratosis
- **Hair abnormalities**: classically a reversible inflammatory, non-scarring frontal alopecia. Hair growth is slowed and textural changes can occur. Increased hair growth is also seen, particularly of the eyelashes and eyebrows. Hypertrichosis can also involve the face and chest.

Initial Assessment: Clinical evaluation, history, physical examination, and review of observations.
Observations: Calculate and monitor NEWS score.
Investigations: If indicated bloods.
NB: Isotretinoin is not indicated for the treatment of papulopustular rash.

Grade 1 (Green)	Grade 2 (Amber)	Grade 3 (Red)	Grade 4 (Red)
Papules and/or pustules covering <10% BSA ± pruritus or tenderness	• Papules and/or pustules covering 10-30% BSA ± pruritus or tenderness • Limiting instrumental ADL • Associated with psychosocial impact.	• Papules and/or pustules covering >30% BSA ± pruritus or tenderness • Limiting self-care ADL • Associated with local super added infection.	• Papules and/or pustules covering any BSA ± pruritus or tenderness and are associated with extensive super added infection • Life-threatening.

• Topical acne treatment e.g. 1% Clindamycin lotion or gel.	• Topical emollients
	• Oral tetracyclines
	• Antihistamines for itch if required.
		• Consider delaying treatment
		• Management as for grades 1 and 2
		• PLUS:
		  • If local super added infection - Oral antibiotics are indicated
		  • If extensive super added infection - IV antibiotics are indicated
		  • Refer to dermatology.	

General management and advice (and management of other skin toxicity patterns)

- For hand-foot skin reaction, see guideline 16 on palmar-plantar erythrodysesthesia (PPE)
- Patients should be advised on general skin care at the commencement of treatment
- The use of soap substitutes, light emollients, sun cream and alcohol-free lotions should be advised
- Emollient creams are preferred over ointments as they can increase acneiform eruptions, e.g. aveeno, epaderm, hydromol
- Topical or oral steroids may be required
- Avoid tight footwear and damage to the nail and surrounding skin if nail changes are observed
- Trichomegaly of the eyelashes can cause discomfort and trichiasis, which should prompt referral to an Ophthalmologist.

Xerosis

- Eczema
  - Face & Neck: 1% hydrocortisone cream
  - Body: 0.05% clobetasone butyrate cream
  - Treat secondary bacterial superinfection as guided by microbiology swabs
- Fissures
  - Greasy emollients e.g. Hydromol ointment, 50% propylene glycol under clingfilm or plastic glove occlusion
  - Fludroxycortide impregnated tape or Zinc oxide paste with salicylic acid.

Nail changes

- Inflammation of nail folds
  - Milton sterilising solution for 20 minutes daily
  - Topical steroid/antifungal e.g. 1% hydrocortisone/ miconazole cream
- Purulent paronychia
  - Oral antibiotics
- Nail fold pyogenic granuloma
  - Curettage and cautery.

Always make sure that the Acute Oncology Team are informed of the patient's assessment and/or admission as soon as possible.
Immediate advice is available from the Acute Oncology Service or the 24-Hour Oncology on call rota.
WITHHOLD SACT, including oral therapy, until you have discussed with the Acute Oncology or Site Specific Team.

GUIDELINE 15.
Skin Rash: Radiotherapy Reactions

- A skin reaction is a common side effect following radiotherapy treatment to the breast, head and neck, perineum, and skin, but may occur for any treated area
- Commonly there is mild erythema and pruritus, the skin may get sore and break down
- On white skin tones with low skin pigmentation erythema presents as pinkness, redness or maroon colour until it looks darker like a tan due to the buildup of melanin
- You may see subtle darkness, yellow/purple/grey in brown and black skin tones, colour changes such as redness is rarely seen
- Touch is essential as visual cues are not enough, so feeling heat, skin roughness/tightness is important
- Patients are told to expect this after 10-14 days and can last for 4-6 weeks after completion of treatment
- This is usually simple to manage but for patients with treatment of the head and neck or perineum, it can be severe, very painful, and impair function
- Development of skin reactions depends on dose, fractionation, position and size of area treated, concurrent chemotherapy, and patient specific factors such as nutritional status.

Grade 1 (Green) Faint or dull erythema / pigmentation (RTOG1)	**Grade 2 (Amber)** Tender or bright erythema / pigmentation without moist desquamation	**Grade 3 (Amber)** Patchy moist desquamation, moist oedema (RTOG 2b)	**Grade 4 (Amber)** Confluent moist desquamation (RTOG 3)
• **Advise the patient to continue to use a moisturiser they prefer and like to use** • **Discuss self-care guidelines** • Ask patient to contact the 24-hour advice line if symptoms worsen.	• **Advise the patient to continue to use a moisturiser they prefer and like to use** • **Discuss self-care guidelines** • **Appropriate comfortable dressing as needed** • Analgesia may be required • Telephone/review patient within 24 hours and ask patient to contact the 24-hour advice line if symptoms worsen or persist.	• Continue to apply moisturiser to skin within the treatment field that is still intact • Appropriate conformable dressing as neeeded • Swab area if signs of infection and prescribe antibiotics as required. • Analgesia for pain – may require opiates. • Telephone/review patient within 24 hours and arrange regular review with the radiotherapy team to assess progress • Ask patient to contact the 24-hour advice line if symptoms worsen.	• Use appropriate conformable dressings/ products on broken skin e.g non-adhesive, silicone low adhesion • Do not use paraffin/ petroleum jelly-based products or gentian violet • Swab area if signs of infection and prescribe antibiotics as required • Analgesia for pain – may require opiates • Telephone/review patient within 24 hours and arrange regular review with the radiotherapy team to assess progress • Ask patient to contact the 24-hour advice line if symptoms worsen.

Patient leaflet SCoR
Healthcare professionals' leaflet SCoR

The advice above is for a guide only and each patient should be assessed individually. If unsure about products to use please seek further advise from the wound care team, tissue viability specialists or dermatology.
For further information please see - https://www.sor.org/learning/document-library/skin-care-advice-patients-undergoing-radical-external-beam-megavoltage-radiotherapy-0

Always make sure that the Acute Oncology Team are informed of the patient's assessment and/or admission as soon as possible.
Immediate advice is available from the Acute Oncology Service or the 24-Hour Oncology on call rota.
WITHHOLD SACT, including oral therapy, until you have discussed with the Acute Oncology or Site Specific Team.

GUIDELINE 16.
Skin Toxicity: Palmar - Plantar Erythrodysesthesia (Hand foot syndrome)

A distinctive localised cutaneous reaction to certain SACT. Symptoms include tingling or burning, redness, flaking/dryness, swelling, small blisters, sores on palms and/or sole.

Questions:
- What SACT is the patient on? When was the last dose?
- Is this a continuous intravenous administration via pump? Does this need to be discontinued?
- Is the patient still taking oral SACT? Does this need to be discontinued?
- Is the patient otherwise well? Any other symptoms e.g. diarrhoea/stomatitis? if yes refer to specific management guidelines:
  - Diarrhoea- guideline 6, P.13
  - Mucositis/stomatitis- guideline 10, P.17
- Have they experienced this side effect before on previous treatment cycles?
- Any signs of infection in the affected areas? – Discuss treatment options with the acute oncology team.

Examination: Clinical evaluation, history, physical examination, and review of observations.
Observations: Calculate and monitor NEWS score.
Investigations: If indicated bloods.
Identify: Patients who have received/receiving systemic anti-cancer treatment or receiving radiotherapy or are at risk of disease related immunosuppression or a history of allogeneic stem cell transplant. These patients may be myelosuppressed / neutropenic and are at risk of neutropenic sepsis and/or thrombocytopenia due to reduced marrow production or marrow infiltration and/or graft versus host disease: If present, this should be managed as per guideline 12 on P.19, immediate antibiotics if sepsis suspected.

Grade 1 (Green) Minimal skin changes or dermatitis (e.g. erythema, oedema, or hyperkeratosis) without pain	**Grade 2 (Amber)** Skin changes (e.g. bleeding, peeling blisters, fissures, oedema or hyperkeratosis) with pain. Limiting instrumental ADL.	**Grade 3 (Amber)** Severe skin changes. (e.g. bleeding, peeling blisters, fissures, oedema or hyperkeratosis). With pain. Limiting self-care ADL
• Reassure the patient that this is recognised treatment related complication and generally nothing to worry about • Emphasise the importance of skin care regimen as per local policy • Encourage adequate hydration • Ask patient to contact 24-hour advice line if symptoms worsen.	• Stop the SACT until discussed with acute oncology or prescribing team • Reassure the patient that this is recognised treatment related complication and generally nothing to worry about • Emphasise the importance of skin care regimen • Consider prescription of high urea-based cream • Telephone/review patient within 24 hours and ask patient to contact the 24-hour advice line if symptoms worsen.	• Stop the SACT until discussed with the Acute Oncology Team. If receiving Capecitabine or 5FU consider DPD deficiency • Review current analgesia (with caution as may not then develop a temperature in response to infection) • Emphasise the importance of continuing skin care regimen as per local policy • Consider prescription of high urea-based cream • Consider specialist dermatology referral • Assess for SDEC or admission if clinically indicated • If discharged -telephone/review patient within 24 hours and ask patient to contact the 24-hour advice line if symptoms worsen.

Always make sure that the Acute Oncology Team are informed of the patient's assessment and/or admission as soon as possible.

Immediate advice is available from the Acute Oncology Service or the 24-Hour Oncology on call rota.

WITHHOLD SACT, including oral therapy, until you have discussed with the Acute Oncology or Site Specific Team.

GUIDELINE 17.
Vomiting
Urgent Initial Triage Assessment

The forceful expulsion of the contents of the stomach through the mouth, and sometimes the nose.

Questions:
- Is there a cancer diagnosis/primary disease?
- What is the extent of the disease? – e.g. known metastases to brain, bone, liver etc
- Is the patient taking anticancer treatment at the moment or recently? If so what treatment and when did it stop?
- How often are they being sick? And are they also feeling nauseous?
- Assess bowel movements, any symptoms that suggest constipation? Any diarrhoea? Bowel obstruction?
- What food and fluids have been taken over last few days?
- Is there any evidence of reflux/gastritis?
- Are there any signs of dehydration e.g. decreased urine output, fever, thirst, dry mucous membranes etc
- Are there any signs of infection?
- Are they taking any medication e.g. steroids, and has there been any recent change?
- Are they currently receiving radiotherapy? (Especially to brain, liver, GI Tract)
- Does the patient have any abdominal pain? Is this a new symptom?
- How is the patient fed? Do they have a feeding tube? Is this in the correct position?

Examination: Clinical evaluation, history, physical examination, and review of observations.

Observations: Calculate and monitor NEWS score.

Investigations: Urgent FBC, U&Es, CRP, LFT, Mg2+, Ca^{2+}, Glucose, CRP, Cortisol, Check CO2 in serum, or blood gases (arterial or venous) for pH / bicarbonate if metabolic alkalosis suspected. Consider Blood cultures if infection suspected. **N.B**. consider the need for pathology investigations in grade 1 presentations on an individual basis and in light of other presenting symptoms or risk factors.

Differential diagnosis includes:

Medication related e.g. SACT	Hypercalcaemia
Gastrointestinal infection	CNS disease
Gastric stasis/ outlet obstruction	Sub-acute or acute bowel obstruction
Disease related	Endocrinopathy/ Hyper-or-hypoglycaemia

Identify: Patients who have received/receiving systemic anti-cancer treatment or receiving radiotherapy or are at risk of disease related immunosuppression or a history of allogeneic stem cell transplant. These patients may be myelosuppressed / neutropenic and are at risk of neutropenic sepsis and/or thrombocytopenia due to reduced marrow production or marrow infiltration and/ or graft versus host disease: If present, this should be managed as per guideline 12 on P.19, immediate antibiotics if sepsis suspected.

Grade 1 (Green)
1-2 episodes in 24 hours. No intervention indicated

- Review prescribed antiemetic medication make sure dose/ route and frequency are appropriate and assess patient compliance and understanding
- Fully investigate cause:
  - **Disease** related e.g. brain or liver metastases, electrolyte imbalance, and obstruction
  - **Medication** related e.g. SACT, opiates etc
- When cause is clearly identified, change antiemetic in line with local policy directions
- Advise self-help measures: Macmillan information and support- coping with side effects
- Telephone/review patient within 24 hours and ask patient to contact the 24-hour advice line if symptoms worsen or persist.

Grade 2 (Amber)
3-5 episodes in 24 hours. Medical intervention indicated

Initial advice as for grade 1
- Consider clinical review
- Telephone/review patient within 24 hours and ask patient to contact the 24-hour advice line if symptoms worsen or persist
- **If symptoms worsen or are associated with other toxicities, consider escalation to RED.**

N.B. 5HT3 may cause constipation.
- MASCC Guidelines - MASCC
- MASCC Antiemesis Tool (MAT) - MASCC

Grade 3 (Red)
6-10 episodes in 24 hours. Acute hospital assessment indicated

Grade 4 (Red)
>10 episodes in 24 hours. Life threatening consequences

- Assess for SDEC or admission if clinically indicated
- IV fluids and electrolyte replacement as appropriate
- Fully investigate cause:
  - **Disease related** e.g. brain or liver metastases, electrolyte imbalance, and obstruction
  - **Medication related** e.g.SACT, opiates etc. If receiving Capecitabine or 5FU consider DPD deficiency.
- Consider placement of naso- gastric tube and nil by mouth order in suspicion of bowel obstruction
- Prescribe antiemetic as appropriate to cause in line with local policy
- Consider alternative route of administration of antiemetic's e.g. syringe driver
- Contact Acute Oncology/Haematology Team who may consider substitution, discontinuation of oral chemotherapy if appropriate
- Consider viral causes of vomiting - isolate unless non-infectious cause confirmed.

Always make sure that the Acute Oncology Team are informed of the patient's assessment and/or admission as soon as possible.
Immediate advice is available from the Acute Oncology Service or the 24-Hour Oncology on call rota.
WITHHOLD SACT, including oral therapy, until you have discussed with the Acute Oncology or Site Specific Team.

GUIDELINE 18.
Immune-Related Adverse Event: Endocrinopathies - Adrenal Crisis

Immunotherapy has been causatively associated with a number of endocrinopathies that may present with nonspecific symptoms, which may resemble other causes such as brain metastasis or underlying disease.

Endocrine function panel:

U&E, LFT, TSH, Free T4, free T3, ACTH, LH, FSH & cortisol (between 9-11am if possible), prolactin, blood glucose +/- testosterone/oestrogen.

Asymptomatic
Identified on routine blood tests.
Biochemical alteration in cortisol with serum level < 200nmol/L

Hypoadrenalism is likely if cortisol is <100nmol/L

Cortisol 100-200nmol/L
Investigations
- Repeat cortisol at 9am ≤ 48 hours - if <200 arrange short synacthen test
- If <100 see "Cortisol <100" green strand
- Complete endocrine function panel if outstanding.

Actions
- Monitor regularly (before each cycle as a minimum) and act as per algorithm if serum levels fall
- Continue immunotherapy.

Cortisol <100nmol/L
Investigations
- Repeat cortisol at 9am ≤ 24 hours – if <100 arrange short synacthen test
- Complete endocrine panel if outstanding.

Treatment
- Replace with hydrocortisone 10mg/5mg/5mg.

Actions
- Refer to Endocrine team
- Give emergency steroid advice and alert card.

Please check local parameters as these may vary between each hospital site.

Symptomatic
Mild/Non-life threatening.
Suspect endocrinopathy based on symptoms.
Tiredness/fatigue, headache, weight loss, susceptibility to infection, normal BP with no postural drop

Investigations:
- 9am Cortisol and ACTH
- If headache present, consider MRI brain with pituitary cuts.

Cortisol (9am) >400 nmol/L
Adrenal insufficiency unlikely
Actions
- Consider other causes of symptoms.
- Continue immuno-therapy.

Cortisol (9am) 100-400 nmol/L
Adrenal insufficiency unlikely
Actions
- Arrange short synacthen test.
- Consider endocrine referral
- Complete endocrine bloods including prolactin, testosterone, and ACTH
- Continue immuno-therapy.

Cortisol (9am) <100nmol/L
Adrenal insufficiency likely
Treatment
- Commence hydrocortisone 10mg/5mg/5mg.

Actions
- Arrange short synachten test
- Refer to Endocrine team
- Complete endocrine bloods including prolactin, testosterone, and ACTH
- Give emergency steroid advice and alert card
- Continue immunotherapy.

Symptomatic
Severe or Life-threatening
Suspect adrenal crisis
Hypotension (SBP <90mm Hg)
Postural hypotension (>20mm Hg drop)
Dizziness/Collapse, Hypovolemic shock
Nausea/ Vomiting, Abdominal pain/ tenderness/guarding, Fever, Confusion/delirium, Coma

Admit patient
Immediate Intervention
- Send endocrine panel including and ACTH prior to giving steroids
- Immediate management with an ABCDE approach
- Commence IV hydrocortisone 100mg QDS immediately without awaiting blood tests
- Urgent Endocrinology referral
- Rule out superadded infections.

Society for Endocrinology [SfE] guidelines for adrenal crisis:
Next Steps are dependent on blood results.
- Introduce steroid replacement hydrocortisone PO 20mg, 10mg, 10mg
- Reduce hydrocortisone to 10mg, 5mg, 5mg after 2 weeks
- Once stable on hydrocortisone replacement for 3-5 days if thyroid deplete then commence levothyroxine
- Arrange short synacthen test
- Recheck testosterone after 3 weeks and replace if remains suppressed.
- Give emergency steroid advice and alert card.

All patients with hypoadrenalism should be assessed for postural hypotension and fludrocortisone (50mcg OD) considered if persistent.

Emergency advice regarding hydrocortisone is outlined in the SfE guidance.

If thyroid function is also compromised within a hypopituitary picture, ensure cortisol is replaced prior to commencement of thyroid replacement (for which the grade 1 hypothyroidism guidelines should be instituted).

Interrupt SACT immunotherapy until discussed with Acute Oncology Team. Please contact on-call oncology/haematology team for advice. Ensure that the patient has monitoring/follow up planned with their oncology/ immuno-oncology team.

GUIDELINE 19.
Immune-Related Adverse Event: Endocrinopathies – Hypophysitis

Immunotherapy has been causatively associated with a number of endocrinopathies that may present with nonspecific symptoms, which may resemble other causes such as brain metastasis or underlying disease. This includes inflammation of the pituitary gland. The pituitary gland is responsible for secreting hormones that govern the activity of the thyroid, adrenal and gonadal glands. Where pituitary inflammation occurs this often leads to deficiency in the hormones governing these glands and insufficiency of one, two or all end organs can occur.

CAUTION If the patient is on steroids (prednisolone/dexamethasone) then serum cortisol will likely be suppressed – please discuss with endocrinology team before commencing replacement.

***Endocrine function panel:**
U&E, LFT, TSH, Free T4, free T3, ACTH, LH, FSH & cortisol (between 9-11am if possible), prolactin, blood glucose +/- testosterone/oestrogen.

Asymptomatic
Identified on routine blood tests.
Biochemical alteration in cortisol with serum level <200nmol/L

Cortisol insufficiency is likely if cortisol is <100nmol/L

Cortisol 100-200nmol/L
Investigations
- Repeat cortisol at 9am ≤ 48 hours – if <200 and no other endocrine function abnormality arrange short synacthen test
- *Complete endocrine function panel.

Actions
- Monitor regularly (before each cycle minimum) and act as per algorithm if serum levels fall
- If cortisol replaced, then evaluate TFTs 1 week later and replace as required.
- If low testosterone/ oestrogen (in premenopausal women) consider replacement and seek endocrine.

Cortisol <100nmol/L
Investigations
- Repeat cortisol at 9am ≤ 24 hours – if <100 replace as below
- Complete endocrine panel
- Treatment
- Replace with hydrocortisone 10mg/5mg/5mg.

Actions
- Refer to Endocrine team
- If cortisol replaced, then evaluate TFTs 1 week later and replace as required
- If low testosterone/ oestrogen (in premenopausal women) consider replacement and seek endocrine advice if unsure
- Give emergency steroid advice and alert card
- Continue immunotherapy.

Symptomatic
Mild/Non-life threatening.
Suspect endocrinopathy based on symptoms
Tiredness/fatigue, headache, weight loss, susceptibility to infection, normal BP with no postural drop

Investigations:
- 9am Cortisol and ACTH
- MRI brain with pituitary cuts.

Cortisol (9am) >400 nmol/L
Adrenal insufficiency unlikely
Actions
- Consider other causes of symptoms
- Continue immuno-therapy.

Cortisol (9am) 100-400 nmol/L
Adrenal insufficiency unlikely
Actions
- Consider endocrine referral
- Complete endocrine panel
- If cortisol replaced, then evaluate TFTs 1 week later and replace as required
- If low testosterone/ oestrogen (in premenopausal women) consider replacement and seek endocrine advice if unsure
- Continue immuno-therapy.

Cortisol (9am) <100nmol/L
Adrenal insufficiency likely
Treatment
- Commence Hydrocortisone 10mg/5mg/5mg.

Actions
- Refer to Endocrine team
- Complete endocrine panel
- If cortisol replaced, then evaluate TFTs 1 week later and replace as required
- If low testosterone/ oestrogen (in premenopausal women) consider replacement and seek endocrine advice if unsure
- Give emergency steroid advice and alert card
- Continue immunotherapy.

Symptomatic
Severe headache, visual disturbance, evidence of focal neurology
Combination of mild/moderate symptoms and pituitary inflammation on MRI
If severe symptoms/signs of hormonal insufficiency with no headache/visual disturbance/pituitary inflammation, then follow adrenal crisis algorithm Guideline 18 P.25

Admit patient
Immediate Intervention
- Commence IV Methylpred 2mg/kg/day for a minimum of 3 days without awaiting blood tests
- If clinically improved with mild/resolved symptoms switch to prednisolone starting at 60mg OD and reducing every 3 days
- Once at 10mg prednisolone introduce steroid replacement hydrocortisone 20mg, 10mg, 10mg
- Reduce hydrocortisone to 10mg, 5mg, 5mg after 2 weeks
- Continue weaning prednisolone till stop but continue hydrocortisone replacement
- Once stable on hydrocortisone replacement for 5-7 days commence thyroxine
- Recheck testosterone/oestrogen (in premenopausal women) after 3 weeks, if low consider replacement and seek endocrine advice if unsure
- Consider urgent Endocrinology referral
- Give emergency steroid advice and card.

Further emergency advice regarding hypophysitis is outlined in the SfE guidance.

If thyroid function is also compromised within a hypopituitary picture ensure cortisol is replaced prior to commencement of thyroid replacement (see grade 1 hypothyriodism guidelines).

Interrupt SACT immunotherapy until discussed with Acute Oncology Team. Please contact on-call oncology/ haematology team for advice. Ensure that the patient has monitoring/follow up planned with their oncology/ immuno-oncology team.

GUIDELINE 20.
Immune-Related Adverse Event: Endocrinopathies-Thyroid Dysfunction

Immunotherapy has been causatively associated with a number of endocrinopathies, including hypo/hyperthyroidism. Observational studies have shown that there is a typical pattern of thyroid specific biochemical disturbance presenting with asymptomatic hyperthyroidism before return to normal levels for a brief period. This is nearly always followed by the development of, in some cases profound, hypothyroidism which is frequently persistent and requires long term thyroid replacement. Smaller subsets of patients develop isolated hypothyroidism over a period of weeks. Both groups appear to require long term replacement in a majority of cases. These guidelines are in the basis of a clinically well patient and not experiencing thyroid disturbance due to being clinically unwell, if this is a concern Endocrinology advice should be sought.

Mild (Grade 1)
Asymptomatic with biochemical changes

Investigations
TSH, Free T4, free T3, ACTH, LH, FSH & cortisol, prolactin, blood glucose +/- testosterone

Hyperthroidism
TSH <0.40 mU/L and Free T4 > 22pmol/L
(If TSH low and T4 normal or low, need to exclude pituitary dysfunction)

Treatment
- Steroids are not needed in this setting unless expressly advised by endocrinology.

Actions
- Recheck TFT's and cortisol within 3 weeks and then 3 weekly thereafter. N.B. the majority of cases become hypothyroid within a matter of weeks.

Once hypothyroid-managed as per hypothyroidism algorithm.

Hypothyroidism
TSH of >10mU/L and Free T4 < 12 pmol/L

Treatment
- Levothyroxine 50mcg/day.

Actions
- Recheck TFT's and cortisol with next cycle of treatment.
- Increase Levothyroxine in 25mcg increments
- Discuss with endocrinologist to identify best pathway for long-term management and monitoring (primary/ secondary care)
- Consider referral to endocrinologist if unable to stabilise thyroid function.

Continue Immunotherapy.

Moderate (Grade 2)
Symptomatic or severe biochemical disturbance

Investigations
TSH, Free T4, free T3, ACTH, LH, FSH & cortisol, prolactin, blood glucose +/- testosterone

Hyperthroidism
TSH <0.40 mU/L and Free T4 > 22pmol/L
(if TSH low and T4 normal or low, need to exclude pituitary dysfunction)

Treatment
- Consider Propanolol to control symptoms
- Carbimazole-rarely indicated due to the transient nature of hyperthyroidism. If persistent or associated with anti-TSH antibodies consider in collaboration with an endocrinologist.

Actions
- Recheck TFT's and cortisol within 2 weeks and fortnightly thereafter. N.B. the majority of cases become hypothyroid within a matter of weeks.

Continue Immunotherapy as long as symptomatically stable.

Hypothyroidism
TSH of >10mU/L and Free T4 < 12 pmol/L

Treatment
- Levothyroxine 50mcg/day.

Actions
- Recheck TFT's and cortisol with next cycle of treatment
- Increase Levothyroxine in 25mcg increments
- Consider referral to endocrinologist if unable to stabilise thyroid function.

Continue Immunotherapy following commencement of levothyroxine.

Please check local parameters for TSH/T4 as these may vary between each hospital site.

Interrupt SACT immunotherapy until discussed with Acute Oncology Team.

Please contact on-call oncology/haematology team for advice.

Ensure that the patient has monitoring/follow up planned with their oncology/immuno-oncology team.

GUIDELINE 21.
Immune-Related Adverse Event: Diarrhoea & Colitis

Gastrointestinal (GI) irAEs are among the most common and although they are typically mild to moderate in severity, if they are left unrecognised or untreated, they can become life-threatening. These toxicities can be managed effectively in almost all patients by using established guidelines that stress vigilance and the use of corticosteroids and other immunosuppressive agents when necessary.

Mild (Grade 1)
- < 4 stools/day over baseline
- *or* mild increase in ostomy output in the absence of abdominal pain, mucous/blood in stools.

Investigations
- Baseline bloods (FBC, U&E, LFTs, TFTs, cortisol & CRP)
- Stool microscopy and culture
- C. difficile toxin
- Faecal calprotectin.

Treatment
- Encourage fluids
- Avoid high fibre and lactose.

Actions
- Regular monitoring
- Consider holding immunotherapy (if on combination anti-PD1/CTLA4 withhold immunotherapy).

Symptoms: PERSIST (≥5 days) or WORSEN or are associated with deranged U & E's

Moderate (Grade 2)
If any of the following symptoms are present:
- 4-6 stools/day over baseline or moderate increase in ostomy output
- Moderate abdominal pain/cramps/ discomfort (may represent enteritis/ gastritis in addition to colitis)
- Mucous in stool.

Clinical Assessment
As per mild (grade 1) +

Investigations
- CMV viral load + PCR (red top blood sample)
- Faeces CMV
- Faecal calprotectin
- Abdominal X-Ray (consider CT abdo/pelvis if AXR abnormal or in presence of abdominal pain)
- Consider Infliximab screen per Grade 3&4
- If recurrent, send for faecal elastase.

Treatment
- Prednisolone 60mg/day + gastric protection
- Fluid balance and replacement as appropriate (inc. diarolyte sachets).

Actions
- Omit next dose of immunotherapy
- Taper per steroid weaning guidance
- Telephone monitoring
- Endoscopy)
- Consider Gastroenterology advice/ review if not improving.

Assess response to treatment within 72 hours

Symptoms: Resolve or Improve to Mild. See steroid tapering guidance

PERSIST or WORSEN or RELAPSE

Severe or Life-Threatening (Grade 3 + 4)
If any of the following symptoms are present:
- ≥7 stools/day over baseline or significant increase in osotomy output
- Severe abdominal pain
- Fever
- Dehydration
- Blood in stool
- Incontinence
- Limiting ADL's.

As per moderate (grade2) +
Consider Admission of patient

Investigations on day 1
- Screen for Infliximab administration suitability on admission (to include- TB Quantiferon test, hepatitis screen, HIV, varicella zoster anti- bodies (IGG antibody), chest X-Ray (if chest CT not already performed)
- Refer for Upper and lower GI endoscopy with biopsies on day 1 of admission
- Daily bloods (FBC, U&E, LFTs & CRP)
- CT Abdomen/pelvis.

Treatment
- IV hydration and fluid balance
- IV Methylprednisolone 2 mg/kg/ day + gastric protection cover and continue for a minimum of 3 days
- Antibiotics are not required as standard
- **Use analgesia with CAUTION.**

Actions
- Daily stool chart
- Consider referral & potential transfer to gastroenterology
- Dietician review
- Consider discontinuation of immunotherapy
- Taper per steroid weaning guidance.

Review patient daily, if no improvement within 72 hours, consider infliximab treatment Consider local/national subsequent management guidelines

Interrupt SACT immunotherapy until discussed with Acute Oncology Team.
Please contact on-call oncology/haematology team for advice.
Ensure that the patient has monitoring/follow up planned with their oncology/immuno-oncology team.

GUIDELINE 22.
Immune-Related Adverse Event Guideline: Hepatotoxicity

Hepatic transaminases (ALT/AST) and bilirubin must be evaluated before each dose of immunotherapy, as early laboratory changes may indicate emerging immune-related hepatitis. Elevations in LFTs may develop in the absence of clinical symptoms. This guidance should be used in context of baseline LFTs and presence of known liver metastases. No dose adjustment is required for mild hepatic impairment, but data is limited for use of these drugs in moderate/severe hepatic impairment and patients should be closely monitored for elevation in LFTs from baseline.

Prior to commencement of immunotherapy all patients should have LFTs checked.

Mild (Grade 1)
AST or ALT < 3 x ULN but increasing from baseline

Investigations
- Weekly LFT / AST check between cycles of immunotherapy and ensure remain stable prior to next cycle. Inform oncology team
- Consider culprit concomitant medications.

Actions
- Continue immunotherapy.

Biochemical Abnormality WORSENS or RELAPSE see moderate/ severe strand (LFT dependant)

Symptoms: Resolve or Improve to Mild. See steroid tapering guidance

Moderate (Grade 2)
AST or ALT >3 to ≤5 x ULN

Clinical Assessment
As per mild (grade 1) +

Investigations
- Regular LFTs, direct and indirect bilirubin and clotting profile
- MRI/USS of liver to exclude PD & thromboembolism and evaluate if evidence of inflammation
- Hepatitis viral panel (hepatitis A, B, C, E)
- CMV, EBV and HIV and auto-antibodies.

Treatment
- Commence prednisolone 60mg/ day+ gastric protection.

Actions
- Withhold dose until the adverse reaction resolves to Grade 0-1 (or returns to baseline)
- Review medications (e.g. statins, antibiotics)
- **Re-check LFTs every 3 days and review patient by phone twice weekly. If improving check LFTs weekly.**

Biochemical Abnormality PERSISTS (≥3 days), WORSEN or RELAPSE see severe strand

Symptoms: Resolve or Improve to Mild. See steroid tapering guidance

Severe or Life-Threatening (Grade 3 + 4)
AST or ALT >5 x ULN
(Grade 4 >20 x ULN)

As per moderate (grade2) +
Consider Admission of patient

Investigations
- Daily LFTs, clotting profile and lactate. If deteriorating, consider venous gas
- MRI of liver to exclude PD & thromboembolism and evaluate if evidence of inflammation or sclerosing cholangitis
- Exclude other causes (e.g. Heart failure/ PD).

Treatment
- IV methylprednisolone 2mg/kg/day
- *Increasing* to 4mg/kg/day could be considered if clinical improvement is unsatisfactory
- IV hydration (patients need to be well hydrated to promote hepatic perfusion with fluid balance)
- Vitamin K 10mg IV daily x 3 days if INR deranged
- **Grade 4 (loss of synthetic function or hyperbilirubinemia) consider commencing.** N-acetylcystine (NAC as per paracetamol overdose protocol in BNF). If albumin low, discuss with hepatologist and consider administration of human albumin solution (HAS).

Actions
- Referral to hepatologists for further advice
- Consider antibiotic prophylaxis with patients on high dose, prolonged steroids
- Establish escalation plan and ceiling of care.

Abbreviations
LFTs = liver function tests
INR = international normalised ratio
ULN = upper limit of normal
PD = progressive disease

Please check local parameters for LFT as these may vary between each hospital site.

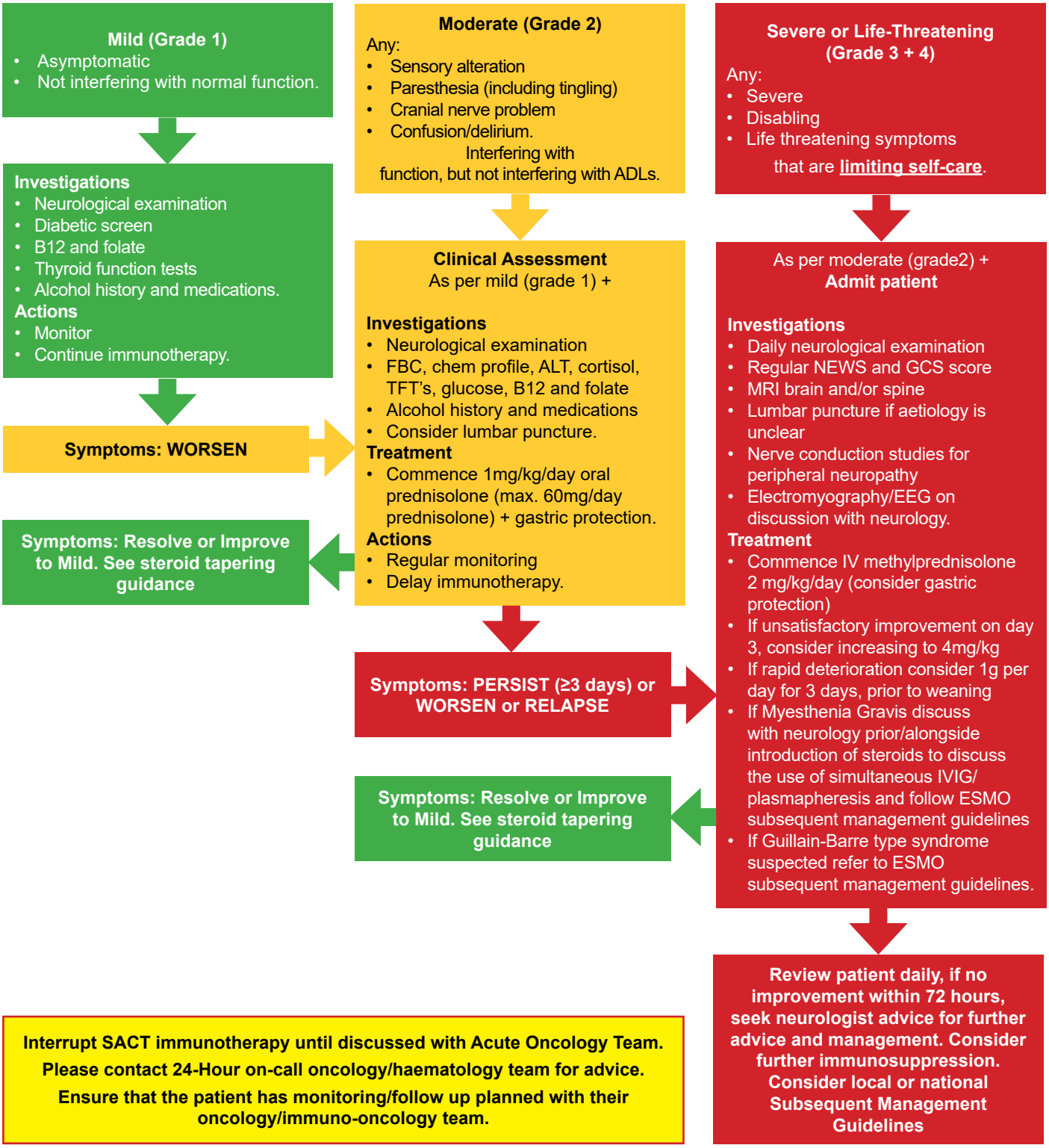
Interrupt SACT immunotherapy until discussed with Acute Oncology Team. Please contact 24-Hour on-call oncology/ haematology team for advice.

Ensure that the patient has monitoring/follow up planned with their oncology/immuno-oncology team.

Ask hepatologist to review and also confirm that this is after 72 hours IV steroids or 24 hours at 4mg/kg IV methylpred. need clarification, consider additional immunosuppression. Consider local or national Subsequent Management Guidelines

GUIDELINE 23.
Immune-Related Adverse Event: Neurological Toxicities

Immunotherapy administration is associated with immune-related adverse events (irAEs). Neurologic irAEs can manifest as central abnormalities (e.g. aseptic meningitis, encephalitis) or peripheral sensory/motor neuropathies (e.g. Guillain-Barre Syndrome). Early recognition and treatment of neurologic AEs is critical to its management. As neurologic symptoms can be common in patients with cancer, it is important that an evaluation/work-up distinguish between non-drug-related causes (e.g. progression of disease, concomitant medications, infection) and a possible drug-related AE as the management can be quite different.



GUIDELINE 24.
Immune-Related Adverse Event: Pneumonitis

Pulmonary irAEs have been observed following treatment with immunotherapy and have occurred after a single dose and after as many as 48 treatments. The frequency of pulmonary AEs may be greater with immunotherapy combination therapies than with monotherapy. The majority of cases reported were Grade 1 or Grade 2 and subjects presented with either asymptomatic radiographic changes (eg, focal ground glass opacities, patchy infiltrates) or with symptoms of dyspnoea, cough, or fever. Subjects with reported Grade 3 or Grade 4 pulmonary AEs were noted to have more severe symptoms, more extensive radiographic findings, and hypoxia.

Mild (Grade 1)
Clinically asymptomatic with Radiographic changes only (e.g. focal ground glass opacities, patchy infiltrates)

Clinical Assessment & O2 SATS

Investigations
- Sputum sample for MC&S
- Baseline bloods (FBC, U & E's, LFT's, CRP, calcium)
- Procalcitonin
- CT Imaging and baseline X-Ray.

To exclude a-typical infections
- Beta-D-Glucan/Galactomanan
- A-typical Viral Screen
- Covid Swab
- Urine legionella and pneumococcal antigen
- Mycoplasma Serology.

Actions
- Monitor symptoms weekly and re-image if worsening
- Consider delay of Immunotherapy
- Consider 30mg of Prednisolone with a weaning course
- Ensure patient referred to local monitoring provision e.g. Immunotherapy Team/Primary oncology team.

Symptoms: WORSEN

Moderate (Grade 2)
Mild to moderate new onset of symptoms limiting instrumental ADL (e.g dyspnoea, cough, fever, chest pain)

Clinical Assessment & O2 SATS
As per mild (grade 1) +

Investigations
- CT imaging as symptomatic for CTPA to exclude PE as a differential (if CTPA –ve for pathology but suspicion of Pneumonitis remains complete HRCT.

To exclude a-typical infections
- Beta-D-Glucan/Galactomanan
- A-typical Viral Screen
- Covid Swab
- Urine legionella and pneumococcal antigen
- Mycoplasma Serology
- Sputum for PJP.

Treatment
- Prednisolone 1mg/kg/day (max. 60mg/day prednisolone) + gastric protection
- If evidence of infection, consider ABX as per local protocol
- Optimise underlying respiratory condition e.g. COPD.

Actions
- Hold immunotherapy
- Monitor symptoms
- Clinical examination if symptoms worsening (with repeat imaging)
- Ensure patient referred to local monitoring provision e.g. Immunotherapy Team/Primary oncology team.

Severe or Life-Threatening (Grade 3 + 4)
Severe new onset of symptoms limiting self-care ADL; or Hypoxia (new or worsening); or ARDS

Consider Admission
As per moderate (grade2) +
Clinical Assessment & O2 SATS

Investigations
- Pulmonary function test.

Treatment
- IV Methylprednisolone 2mg/kg/day + gastric protection
- Oxygen therapy
- Consider increasing to 4mg/kg/day if clinical improvement is unsatisfactory
- If evidence of infection, consider ABX as per local protocol.
- Optimise underlying respiratory condition e.g. COPD.

Actions
- Consider discontinuing Immunotherapy
- Refer to a chest physician
- Monitor symptoms daily with clinical examination and repeat imaging as indicated, if symptoms worsening, repeat imaging is required
- Consider Second line Immunosuppression with Tacrolimus (MMF and Infliximab can be considered as alternative)
- Referral to Interstitial Lung MDT
- Consider referral to Chest Physician and Bronchial Alveolar Lavage
- Ensure patient referred to local monitoring provision e.g. Immunotherapy Team/Primary oncology team.

Assess response to treatment within 72 hours

Symptoms: Resolve or Improve to Mild. See steroid tapering guidance

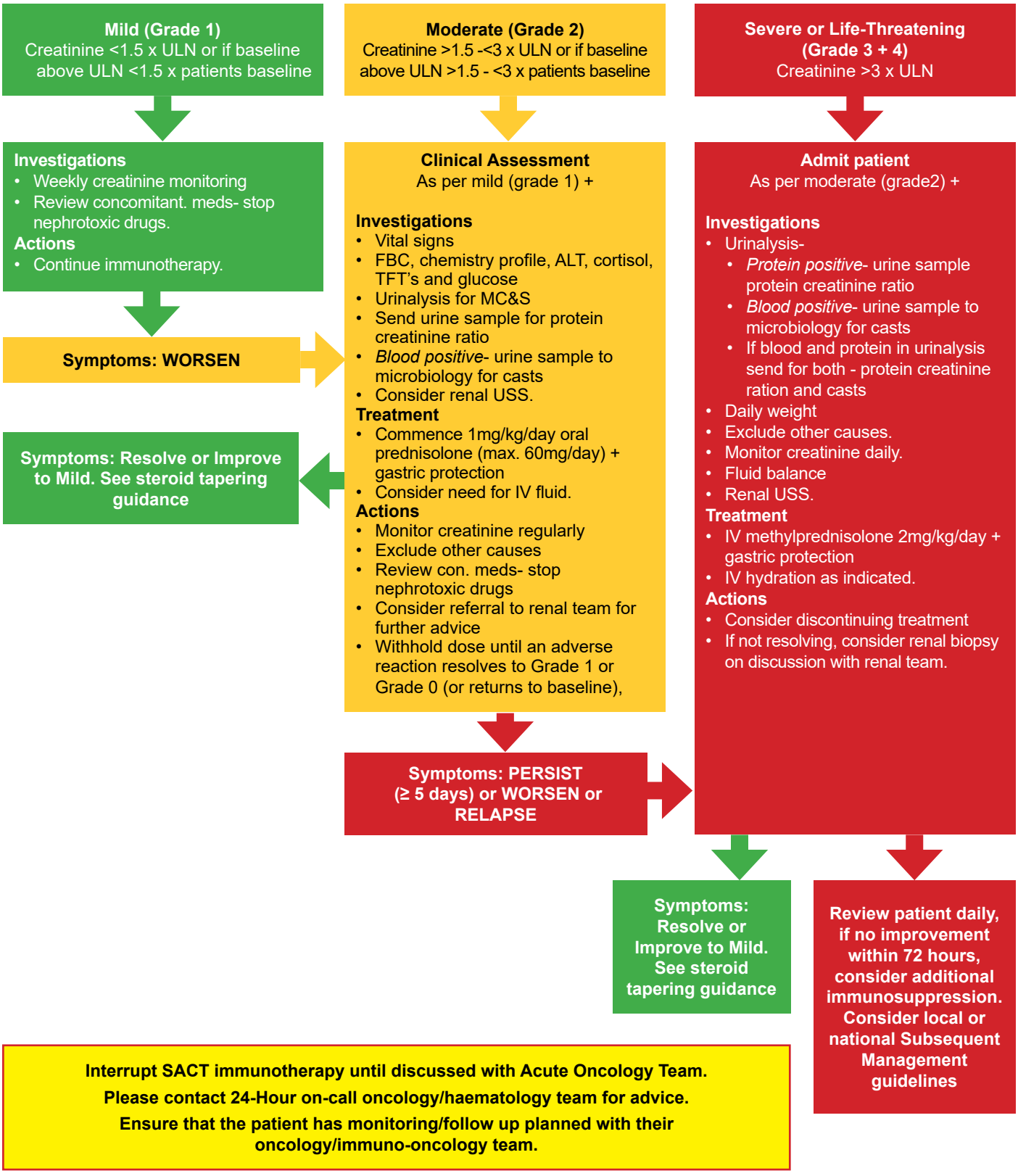
PERSIST or WORSEN or RELAPSE

Review patient daily, if no improvement within 72 hours, seek chest physician advice for further advice and management. Conisder local/national subsequent management guidelines

Interrupt SACT immunotherapy until discussed with Acute Oncology Team. Please contact 24-Hour on-call oncology/haematology team for advice. Ensure that the patient has monitoring/follow up planned with their oncology/immuno-oncology team.

GUIDELINE 25.
Immune-Related Adverse Event: Renal Toxicities

Renal function (urea and creatinine) must be evaluated before each dose of immunotherapy, as early laboratory changes may indicate emerging immune-related nephritis. Elevations in renal function may develop in the absence of clinical symptoms. This guidance should be used in context of baseline renal function and presence of known renal impairment. No dose adjustment is required for renal impairment but should be used in caution as per below in the presence of nephritis. Various histological nephritides have been identified in patients with IO induced nephritis. Patients should be closely monitored for elevation in U&Es from baseline. Patients with renal transplants receiving IO should be monitored closely for deterioration in renal function. Prior to commencement of immunotherapy all patients should have renal function checked.



GUIDELINE 26.
Immune-Related Adverse Event: Skin Toxicities

Immunotherapy administration is associated with immune-related adverse events (irAEs). Dermatological irAEs common and although they are typically mild to moderate in severity, if they are left unrecognised or untreated, they can become life-threatening. These toxicities can be managed effectively in almost all patients by using established guidelines that stress vigilance and the use of corticosteroids and other immunosuppressive agents when necessary, consider the rule of nines.

Mild (Grade 1)
- Localised macular/Papular eruption
- Asymptomatic.

Treatment
- Emollient with paraffin content (eg Cetraben®)
- Consider anti-histamines- regular chlorpheniramine 4mg qds tablet.

Actions
- Regular monitoring
- Continue immunotherapy.

Symptoms: WORSEN

Moderate (Grade 2)
- Rash affecting ≤ 50% skin surface
- Itchy
- Affecting ADL's/sleep.

Clinical Assessment

Investigations
- Vital signs
- FBC, chem profile, ALT, cortisol, TFT's and glucose
- Photograph rash
- Measure lesions.

Treatment
- Antihistamines- chlorpheniramine 4mg tablets qds
- Localised rash:
  - Betamethasone cream (eg Betnovate® cream bd)
  - Emollient with paraffin content (eg Cetraben®)
- Extensive rash:
  - Prednisolone - commence at 30mg OD and can be increased to 1mg/kg/day (max. 60mg/day) + gastric protection
  - Emollient with paraffin content (eg Cetraben®)
  - Betamethasone cream (eg Betnovate® cream bd).

Actions
- Withold treatment until ≤ grade 1
- Consider referral to local dermatology team
- Consider biopsy
- Monitor.

Symptoms: Resolve or Improve to Mild. See steroid tapering guidance

Symptoms: PERSIST (≥ 5 days) or WORSEN or RELAPSE

Severe or Life-Threatening (Grade 3 + 4)

Is defined as any of the following:
- >50% skin surface
- generalised
- exfoliative
- ulcerative
- bullous dermatitis.

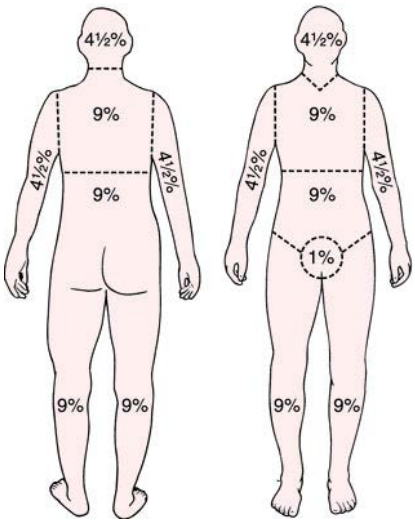
Admit patient

As per moderate (grade2) +

Investigations
- Antibiotics are not indicated unless there is a concern of recurrent infections and/or recommended by treating clinician.

Treatment
- Commence IV hydration
- IV methylprednisolone 2 mg/kg/day + gastric protection
- Regular vital signs and fluid balance
- Antihistamines- Chlorpheniramine 4mg QDS. Can add in fexofenadine Hydrochloride 120mg OD
- Emollient to 50:50 soft white paraffin (liquid paraffin).

Actions
- Consider discontinuing immunotherapy permanently.
- Urgent referral to local dermatology team for advice +/- biopsy
- Monitor daily.



The rule of Nines

Symptoms: Resolve or Improve to Mild. See steroid tapering guidance

Review patient daily, if no improvement within 72 hours, consider additional immunosuppression. Consider local or national subsequent management guidelines

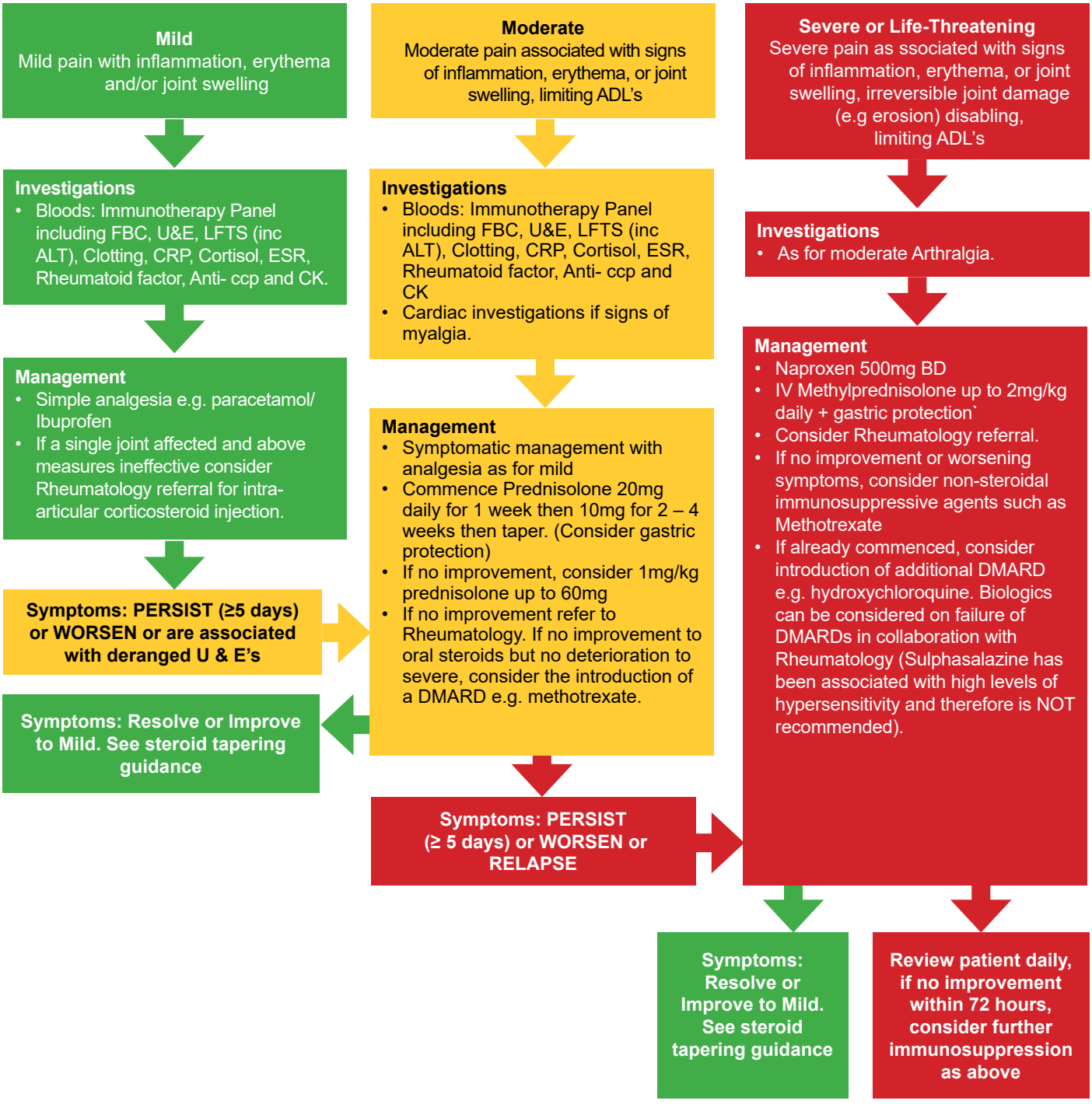
Interrupt SACT immunotherapy until discussed with Acute Oncology Team.

Please contact 24-Hour on-call oncology/haematology team for advice.

Ensure that the patient has monitoring/follow up planned with their oncology/immuno-oncology team.

GUIDELINE 27.
Immune-Related Adverse Event: Arthralgia/Myalgia

Arthralgia is an increasing recognised side effect of oncological immunotherapy. This may manifest with single joint involvement or multi-articular involvement with synovitis. Additionally, patients may develop myalgia which may go on to develop myositis. It is important to note that myositis can evolve into myocarditis and thus it is important to undertake the investigations recommended and monitor both symptomatic and biochemical responses to treatment. Patients often require non-steroid sparing agents so please implement the protocols for management of patients on these agents e.g. methotrexate and consider early referral to local rheumatology services.
NB Myalgia can be a sign of myositis, which can transform into Myocarditis therefore cardiac involvement should be excluded.



Interrupt SACT immunotherapy until discussed with Acute Oncology Team.
Please contact 24-Hour on-call oncology/haematology team for advice.
Ensure that the patient has monitoring/follow up planned with their oncology/immuno-oncology team.

GUIDELINE 28.
Immune-Related Adverse Event: Myocarditis

Myocarditis is a recognised complication of immune checkpoint inhibitors. The majority of reported cases have occurred within the first month of therapy. Approximately 1% of patients treated with checkpoint inhibitors develop cardiotoxicity. Myocarditis is associated with a high mortality rate if not treated. It is common for patients to be asymptomatic/ have minimal symptoms and abnormal cardiac tests are significant.

Mild (Grade 1)
Clinically asymptomatic or presenting with fatigue/new pedal oedema

Cardiac enzymes
- **Trop T** is >14 and <30 ng/L **OR** elevated above baseline by <20 ng/L (if raised at baseline)
- **NT-Pro-BNP** is >500 <1000 ng/L.

Clinical Assessment

Investigations
- ECG
- Bloods (Troponin, NT-pro-BNP, Creatinine Kinase, FBC, U&Es
- Chest X-ray.

Actions
- Consider delay of immunotherapy
- Repeat ECG & bloods in 2 weeks
- Consider echocardiogram in the presence of pedal oedema.

Moderate (Grade 2)
New onset of symptoms with moderate exertion (e.g. Dyspnoea, chest pain, palpitations, peripheral oedema, pre-syncope, syncope) OR evidence of elevated cardiac enzymes/ECG changes even in the absence of symptoms

Cardiac Enzymes
- **Trop T** is >30 <100 ng/L **OR** elevated above baseline by >20 ng/L (if raised at baseline)
- **NT-Pro-BNP** is ≥1000 <3000 ng/L OR increased from baseline.

Clinical Assessment
As per mild (grade 1) plus

Investigations
- Echocardiogram
- Cardiac Magnetic Resonance Scan
- Infliximab screen
- TPMT Levels
- Whilst on IV steroids for Daily ECG and repeat cardiac markers.

Treatment
- IV Methylprednisolone 4mg/kg/day + gastric protection for 5/7. Taper to 2mg/kg/day for 3/7. Step down to Oral Prednisolone 1mg/kg. Review response and oral steroid taper (see tapering guidance)
- Consider ACEi +/- beta-blocker.
- If evidence of overload, consider diuretics
- If evidence of cardiac impairment refer for heart failure optimisation.

Actions
- Hold immunotherapy
- Consider hospital admission
- Consider referral to cardio-oncologist.

Severe or Life-Threatening (Grade 3 + 4)
New onset of severe symptoms at rest or with minimal exertion; intervention indicated

Cardiac Enzymes
- Trop T is ≥100 ng/L
- NT-Pro-BNP is ≥3000 ng/L.

Clinical Assessment
As per moderate (grade2) +

Treatment
- IV Methylprednisolone 1g + gastric protection for 3/7. Taper to 4mg/kg/day for 3/7. Taper to 2mg/kg/day for 3/7. Step down to Oral Prednisolone 1mg/kg. Review response and oral steroid taper (see tapering guidance)
- Supportive therapy (inotropes, anti-arrhythmics*) and as for grade 2.

Actions
- Stop immunotherapy
- Consider whether patient requires admission to CCU/HDU and their ceilings of care
- Refer to cardio-oncologist and IO Clinician
- Consider Mycophenolate or Tacrolimus, in patients not responding optimally to high dose steroids
- If limited response, consider biologic e.g. Infliximab, Tocilizumab or abatacept. A further DMARD e.g. azathioprine, could also be considered
- Consider local or national subsequent management guidelines

**If anti-arrhythmics are required amiodarone should be avoided if possible and only used on discussion with immunotherapy specialist due to the risk of pneumonitis.*

Interrupt SACT immunotherapy until discussed with Acute Oncology Team.
Please contact 24-Hour on-call oncology/haematology team for advice.
Ensure that the patient has monitoring/follow up planned with their oncology/immuno-oncology team.

GUIDELINE 29.
Steroid Tapering Guidance

Many patients will receive moderate- to high-dose steroid therapy for their immune-related toxicity for several weeks. Length of tapering is usually dictated by the severity of the irAE. Regular monitoring during tapering is strongly advised as there is an increased risk of irAE recurrence.

Oral steroid tapering
Initiate corticosteroid taper over 3-6 weeks

Tapering guidance
- Monitor patient during taper
- Reduce prednisolone dose by 10mg every 3 days (as toxicity allows) until dose is 10mg/day
- Once steroid dose is 10mg/day continue for 5 days then reduce to 5mg for 5 days then stop
- **Please provide full course of steroid tapering.**

ALL PATIENTS SHOULD HAVE A 9AM CORTISOL CHECKED WITHIN THE 5-7 DAYS FOLLOWING COMPLETION OF THEIR STEROID TAPER

Intravenous steroid tapering
Corticosteroid taper over at least 3-6 weeks

Tapering guidance
- Continue IV methylprednisolone 2mg/kg/day for a total of 5 days then switch to oral prednisolone 60mg/day
- If following a re-flare and reintroduction of IV steroids reduce to 1mg/kg/day of prednisolone PO for 3 days, then commence taper
- Upon discharge
  - Monitor patient during taper
  - Reduce prednisolone dose by 10mg every 5 days (as toxicity allows) until dose is 10mg/day
  - Once steroid dose is 10mg/day, reduce by 5mg for 5 days then stop
- **Please provide full course of steroid tapering.**

Supportive measures

Hyperglycaemia

A baseline HbA1c should be requested at steroid initiation and random blood sugar monitoring (BM) alongside biochemical monitoring should be undertaken whilst on treatment. If new hyperglycemia is detected, then the UK Chemotherapy Board and The Joint British Societies for Inpatient care joint guideline on the management of glycaemic control in patients with cancer should be followed including advice from local endocrinology teams. Patients may require oral anti-diabetic medication or insulin in the short term.

Insomnia

This is the most common steroid-related side effect. Sleep hygiene counselling is important. Patients may require short-term use of zopiclone (benzodiazepines should only be considered in rare circumstances for a max 3-5 days). Patients should be counseled about the importance of early morning steroid administration.

Osteoporosis

Vitamin D and calcium levels should be taken at baseline and if low, replaced as appropriate. In patients on steroids for >3 months, or with pre-existing osteoporosis, a bone density scan and AdcalD3 and alendronate (or another bisphosphonate should be considered).

Infection

In patients receiving the equivalent of prednisolone 25mg for > 6 weeks or 2 or more immunosuppressant's, PCP prophylaxis with co-trimoxazole (800/160mg Mon/Wed/Fri) should be considered (incidence of PCP in this patient group is very low).

The oropharynx should be monitored for candidiasis and may require topical therapy such as Nystatin or oral antifungals. Azole antifungals commonly cause hepatitis and so should be used with caution in prophylactic setting.

If patients are on other immuno-modulatory agents e.g. Mycophenylate mofetil (MMF), consideration may be given to CMV prophylaxis with gancyclovir, especially if CMV IgG negative and lymphopenic. Acyclovir prophylaxis should be considered in patients who are immune-suppressed and have required treatment for oral viral infection.

General

Ensure all patients are given a national Steroid Alert Card when commencing on corticosteroids.

Ensure steroid sick day rules are implemented as required.

IF PATIENT CANNOT TAKE STEROIDS FOR ANY REASON, THEY SHOULD SEEK URGENT ADVICE VIA THEIR 24- HOUR ONCOLOGY/HAEMATOLOGY ADVICE LINE.

GUIDELINE 30.
Abdominal Ascites

Ascites is the accumulation of protein rich fluid in the peritoneal cavity and can be classed as an exudate or transudate. Ascites typically develops in the setting of recurrent and/or advanced cancer, the commonest sites being ovarian, breast and colorectal.

Examination: Clinical evaluation, history, physical examination, and review of observations.
Observations: Calculate and monitor NEWS score.
Investigations: FBC, U&Es, LFT, clotting screen, Albumin, consider CRP in spontaneous bacterial infection, CXR, AXR, Abdominal USS.
Signs and symptoms:

Abdominal pain and distension	Decreasing appetite
Dyspnoea	Nausea
Vomiting	Increased fatigue
Bulging flanks with dullness to percussion	

Investigations:
- Previous cancer diagnosis or malignancy of unknown origin (MUO)
- Differential diagnosis would include liver disease.

Identify: Patients who have received/receiving systemic anti-cancer treatment or are at risk of disease related immunosuppression or a history of stem cell transplant. These patients may be myelosuppressed /neutropenic and at risk of sepsis. If present, this should be managed according to guidelines.

Grade 1 (Green)
Asymptomatic; clinical or diagnostic observations only; intervention not indicated

Grade 2 (Amber)
Symptomatic; medical intervention indicated

- Check all blood results and act on abnormalities e.g. neutropenia or pancytopenia
- Arrange for elective insertion of ascitic drain under USS control in accordance with local guidelines/practice
- Discuss with Acute Oncology team
- Telephone/review patient within 24 hours and ask patient to contact the 24-hour advice line if symptoms worsen.

Grade 3 (Red)
Severe symptoms (see signs and symptoms); invasive intervention indicated

Grade 4 (Red)
Life threatening consequences: urgent operative intervention indicated

- Check all blood results and act on abnormalities e.g. neutropenia or pancytopenia
- Admit as an emergency and arrange for urgent drainage of ascites under USS control
- Plan further management in accordance with trust local guidelines depending upon differential diagnosis
- Discuss with the Acute Oncology team.

Inform the Acute Oncology Team of the patient's assessment and/or admission as soon as possible.
Immediate advice is available from the Acute Oncology Service or the 24-Hour Oncology on call rota.
WITHHOLD SACT, including oral therapy, until you have discussed with the Acute Oncology or Site Specific Team.

GUIDELINE 31.
Pulmonary Carcinomatous Lymphangitis

Pulmonary Carcinomatous lymphangitis refers to a diffuse infiltration and obstruction of the pulmonary parenchymal lymphatic channels. It is associated with many malignancies most are adenocarcinomas of the breast, lung, colon, pancreas and stomach.

Clinical presentation

Clinically patients present with:
- Increasing breathlessness
- May also have a progressive dry cough or haemoptysis.

Radiation pneumonitis/treatment related pulmonary fibrosis should be considered as can cause similar symptoms.

Diagnosis is based on clinical suspicion in a patient with metastatic cancer and appropriate symptoms.

Chest X-rays can appear normal in 30-50% of cases, but characteristic changes include:
- Bronchovascular markings with irregular outlines
- Reticular-nodular shadowing
- Bilateral lower lobe changes.

Investigations: consider checking ABGs.

Other more general changes include:
- Hilar and mediastinal lymphadenopathy
- Pleural effusions.

High resolution CT Scanning is the investigation of choice if CXRs are equivocal, or the clinical picture is not obvious.

Treatment

- Corticosteroids (such as dexamethasone 4mg bd, with appropriate PPI cover and not be taken later than 2pm to avoid insomnia) may be beneficial to aid in the management of the associated dyspnoea.
- Discussion with the patient's oncology team is warranted as to whether there are any systemic oncological treatments available, as treating the malignancy itself is the only long-term option.
- Unfortunately, the prognosis of patients who develop pulmonary carcinomatous lymphangitis is poor as it is associated with last stage malignancy.

Consider urgent referral to the palliative care team for symptom management and advice.

Inform the Acute Oncology Team of the patient's assessment and/or admission as soon as possible.
Immediate advice is available from the Acute Oncology Service or the 24-Hour Oncology on call rota.
WITHHOLD SACT, including oral therapy, until you have discussed with the Acute Oncology or Site Specific Team.

GUIDELINE 32.
Central Venous Access Devices (CVAD) - Risks And Complications

There are several risks and complications related to the insertion and maintenance of CVADs. These are briefly discussed below. If you have any concerns relating to any of the following problems, please refer to your Local Management Guidelines or contact your Acute Oncology Team.

Removal of the line is not always necessary; please seek appropriate advice from your Acute Oncology Team or the 24-hour oncology on call rota before removing a line.

Infection

Localized infection: Tunnel infections can occur in skin tunnelled CVADs, around the insertion site of PICCs or in the port pocket. These areas should be examined prior to access and/or daily by HCP or self-monitoring for any signs of redness, swelling or discharge, pain, or tenderness at the exit site. Absence of discharge does not rule out local infection because if a patient is neutropenic, pus may not be produced. If neutrophils are in normal range and the patient is well and apyrexial, localized infection can be treated with oral or intravenous antibiotics according to the clinical condition of the patient at that time.

Consider microbiology advice/medical review if:

- Lack of response to antibiotics which should be acted upon quickly so that infection does not progress further
- The patient has a haematological malignancy or is receiving GCSF treatment.

Luminal infection: Often presents as pyrexia/shivers/rigor following catheter flushing. If untreated this can progress to septicaemia. If a CVAD infection is suspected the patient should be admitted to hospital for blood cultures and intravenous antibiotics. This is a serious complication of CVADs and can be life threatening if the patient has recently received chemotherapy and is neutropenic.

Any heath professional caring for a patient with a CVAD must be able to recognize the signs and symptoms of sepsis. First dose of antibiotics for patients with neutropenic sepsis should be delivered as per national directives within 1 hour of arrival to hospital to injection time. **If present, this should be managed as per guideline 12 on P.19,** immediate antibiotics if sepsis suspected.

Seek advice regarding line removal from the Acute Oncology Team or the 24-hour oncology on call rota.

If the line is patent, it may be appropriate to use it for the delivery of required antibiotics. Please seek advice from the Acute Oncology team or the 24 hours oncology on-call rota.

Thrombosis

Thrombosis is the formation of a clot within a blood vessel. Signs and symptoms of thrombosis secondary to CVAD insertion include: pain in the arm, shoulder or chest, swelling, auxiliary blood vessel formation. Thrombosis should be managed according to locally agreed guidelines.

Phlebitis

This is the inflammation of the intima of the vein, and it can be mechanical or infective in origin.

Mechanical phlebitis is most common in PICCs and can occur within 72 hours to a week of CVAD insertion.

Signs and symptoms include pain, erythema, warmth, and a venous cord may be palpable. Mechanical phlebitis can be treated effectively with application of heat pads every 4-6 hours for 20 minutes at a time. Patients should also be offered analgesia as required. CVADs should not be removed without seeking appropriate advice from the Acute Oncology Team.

Haematoma

This results from uncontrolled bleeding around the site of insertion. It is a hard and painful swelling with infiltrated blood. Hirudoid cream can be used to soothe and relieve bruising and haematoma: 5-15cm of cream applied over affected area up to 4 times daily and gently massaged into the skin. Firstly, check if the patient is taking any anticoagulant therapy or aspirin. Also check platelet count and clotting.

Catheter Migration

Although secured in place, the catheter tip can migrate from its desired position just above the right atrium. This can be due to the patient being very active, or the catheter not being secured properly or in the case of skin tunnelled catheters poor granulation may result in the Dacron cuff slipping. The sign is that the length of the catheter outside the body gets longer. It is important to always check the length before any manipulation of the catheter. If the Dacron cuff is visible or the length of the PICC is greater outside the body, chest x-ray will be required to confirm the position of the catheter tip. Symptoms of catheter migration can include pain in the neck and a rushing sound in the ear during flushing. Management will depend on tip position but may require removal of device.

GUIDELINE 32 continued.
Central Venous Access Devices (CVAD) - Risks And Complications

Air Embolus

This is a very rare complication. Methods to reduce the risk of air embolus should be used when inserting, accessing or removing a CVAD. Only health professionals trained and competent to do so should be inserting, accessing or removing. Local policies should be adhered to. If a patient suddenly becomes acutely short of breath and distressed, air embolism should be suspected. Check the CVAD for any obvious damage and clamp above if any are apparent. Lay the patient in left lateral Trendelenburg position and call for urgent medical assistance.

Catheter Damage

If it is an open-ended catheter that is split above the clamp, use an atraumatic clamp (or clamps covered in gauze) above the damaged area. Apply an occlusive dressing over the split area. Consider repairing the CVAD if appropriate or it may require removal.

Accidental Removal

Arrangements then need to be made for replacement of the CVAD. Inspect the catheter to ensure that it is intact if in doubt then X-ray confirmation is required.

Unable to aspirate blood

Patency of CVADs should be established prior to administration of any drug or solution (RCN 2010). This is to ensure that any risk of extravasation is minimized. Occlusion can be termed complete, partial or withdrawal occlusion.

Complete occlusion can be due to a clot or drug precipitation within the line or a fibrin sheath completely enveloping the device. It results in an inability to either withdraw blood or infuse liquids.

Partial occlusion can be due to a small blood clot within the catheter or an external obstruction, for example a twist or a kink in the catheter. It results in difficulty withdrawing blood.

Withdrawal occlusion can result from a fibrin tail or malposition of the tip of the catheter and results with inability to withdraw blood but fluids can be administered with ease.

Fibrin sheaths can form as quickly as 24 hours following insertion, fluids can be administered but aspiration of blood is impossible as the fibrin acts as a valve (Amesur 2007).

Consider cathetergram when diagnosing the reason for catheter blockage.

Unblocking Central Venous Catheters: Thrombolytics such as urokinase are used to re-establish patency of CVADs obstructed with intraluminal or extra luminal thrombus or fibrin sheath. This agent breaks down fibrin. Thrombolytics should be prescribed by the medical staff and administered by staff that have been trained to do so, only after other reasons for catheter obstruction have been ruled out.

Do not attempt to access/unblock CVADS if you are not trained to do so.

Inform the Acute Oncology Team of the patient's assessment and/or admission as soon as possible.
Immediate advice is available from the Acute Oncology Service or the 24-Hour Oncology on call rota.
WITHHOLD SACT, including oral therapy, until you have discussed with the Acute Oncology or Site Specific Team.

GUIDELINE 33.
Cerebral/or CNS oedema and/or cerebral space occupying lesion

Cerebral space occupying lesion – may be primary disease site or metastatic deposits.

Acute cerebral /other CNS oedema – may be disease related e.g. developing around an intrinsic lesion within the brain tissue e.g. a tumour or an abscess or treatment related in the patient who is receiving radiotherapy.

Questions:
- Cancer diagnosis/primary disease/ known metastatic disease
- Currently receiving or have recently completed SACT treatment
- Currently receiving or have recently completed radiotherapy treatment
- Are the presenting symptoms new?
- Are there any co-existing conditions such as epilepsy, hypertension or medication that may account for the patients' symptoms?

Examination: Clinical evaluation, history, physical examination, and review of observations.

Observations: Calculate and monitor NEWS score.

Investigations: Urgent FBC, U&Es, CT scan of head. If CT negative and strong suspicion of brain lesion, due to clinical presentation, consider MRI brain (MRI with contrast maybe required to rule out meningeal disease).

Full Clinical / neurological assessment:
Signs and symptoms may include:

New onset of seizures	Headache
Visual disturbance	Motor dysfunction, symptoms of stroke
Cognitive dysfunction, confusion, disorientation and/or memory loss	

NOTE: If there is no history of previous malignancy, please see MUO/CUP guideline 40 on P48.
Identify: Patients who have received/receiving systemic anti-cancer treatment or are at risk of disease related. immunosuppression or a history of bone marrow transplant. These patients may be myelosuppressed/ neutropenic and at risk of sepsis. f present, this should be managed as per guideline 12 on P.19, immediate antibiotics if sepsis suspected.

Grade 1 (Green)
Fully functional status (i.e. able to work) with minor neurologic findings, no medication needed

- Patients should be discussed with either the Acute Oncology Team or on call oncologist as they may require specialist review and management planning prior to discharge
- Advise to contact the 24-hour advice line if symptoms worsen or persist
- Consider staging CT if one has not been completed previously.

If discharged and brain mets suspected or confirmed inform the patient not to drive

Grade 2 (Amber)
Neurologic findings present are sufficient to require home care, nursing assistance may be required. Medications including steroids/anti-seizure agents may be required

- Commence dexamethasone
- 8-16mg oral OD (IV if required) with PPI cover
- Anti-seizure medication if having seizure activity
- Assess for SDEC or inpatient management
- Consider neuro-oncology MDT referral/discussion
- Patients should not be discharged without senior review
- If discharged the patient must have clear information for follow up and emergency contact details should their condition worsen
- Consider staging CT if one has not been completed previously.

Grade 3 (Red)
Neurologic findings requiring hospitalisation for initial management

Grade 4 (Red)
Serious neurologic impairment which includes paralysis, coma or seizures>3 per week despite medication management - hospitalisation required

- Dexamethasone 16mg oral OD (IV if required) with PPI cover
- Anti-epileptic medication if having convulsions
- Admit for monitoring, ongoing assessment and management in accordance with local trust guidelines
- Early critical care management/advice if deterioration
- **Note**: need for caution in patients with no previous known malignancy if lymphoma suspected, steroids might cause rapid resolution of the tumour, which may make histological diagnosis very difficult. If possible, steroids should be avoided before biopsy if lymphoma suspected. This should also be considered in patients presenting with MSCC
- Consider staging CT if one has not been completed previously.

Referral to the Acute Oncology Team is recommended for all patients, immediate advice is available from the Acute Oncology on call rota.
Patients with no known malignancy will require neurosurgical referral.

Patients with known primary disease presenting with metastatic disease require referral to the Brain and CNS MDT. Patients on active anti-cancer treatment will require oncological review prior to further treatment. Consider palliative care referral in patients with poor performance status, advanced disease, for symptom control advice.

GUIDELINE 34.
Extravasation

This is the accidental administration of drugs into the extra vascular tissue instead of into the vein. If the drug extravasated is a vesicant, the damage to the surrounding tissue can be extensive and tissue necrosis can occur.

Extravasation may be linked to peripheral cannulation or a Central Venous Access Device (CVAD).

Suspect peripheral extravasation if:

a) Patient complains site pain, burning, aching/discomfort, around the cannula

b) There is evidence of swelling, fluid leakage at or around the exit site and along subcutaneous canal

c) There is resistance on plunger of syringe or absence of of flow at infusion

d) **Action**: If extravasation occurs during peripheral administration of SACT; Act immediately according to your local guidelines.

Although administration of drugs via CVADs carry less risk of extravasation than via peripheral administration, if it does occur the damage is likely to be larger and more severe than with peripheral extravasation. This is because the event is not likely to be noticed immediately

Suspect CVAD extravasation if Signs and symptoms include:

- Patient complains of pain around the insertion site, along the skin tunnel or over the port area
- There is evidence of redness and swelling around the insertion site, along the skin tunnel or over the port area
- There is visible leaking of the drug fromhe skin tunnel, round the catheter exit site or around the Huber needle insertion site.

Extravasation of a vesicant drug via any route should be treated as a medical emergency.

If it is discovered the local Acute Oncology or Plastics Team (according to policy) should be contacted immediately. The local extravasation policy should be followed

Immediate action for all drug categories if extravasation is suspected

If the patient is receiving an active infusion STOP the infusion immediately

↓

Leave the vascular access device in place.

↓

Attempt to aspirate as much drug as possible with a new syringe.

↓

Inform a senior member of the Acute Oncology or IV Access Team immediately who will follow local guidelines

↓

Organise X-ray (ultrasound)of line or cathetergram for any CVAD device

For vesicant extravasations or large volumes of irritant drugs refer to plastic surgeon as soon as possible after detection see local pathway

GUIDELINE 35.
Hypercalcaemia Of Malignancy

Definition: A disorder characterized by laboratory test results that indicate an elevation in the concentration of calcium (corrected for albumin) in blood. **Corrected calcium >3.4mmol/L requires URGENT treatment.**

Questions:
- Is there a cancer diagnosis/primary disease?
- Are they taking anticancer treatment at the moment or recently? If so what treatment and when did it stop?
- Have they previously suffered from hypercalcaemia?
- Are they taking any other medication? Stop any calcium supplements.

Examination: Clinical evaluation, history, physical examination, and review and monitoring of NEWS score.
- Assess for symptoms of hypercalcemia and duration
- Fluid balance status.

Observations: Calculate and monitor NEWS score.

Investigations:
- ECG - look for shortened QT interval or other conduction abnormalities
- Bloods – Ca^{2+} adjusted for albumin, Phosphate, PTH, Vitamin D, U&Es.

Signs /symptoms:

Polyuria and thirst	Anorexia	Nausea/Vomiting
Constipation	Abdominal pain	Fatigue / Lethargy
Mood disturbance	Cognitive dysfunction	Confusion
Seizures	Renal impairment	Pancreatitis
Peptic ulceration	Muscle weakness	Band keratopathy
Hypertension	Cardiomyopathy	Shortened QT interval
Dysrhythmias	Coma	

Grade 1 (Green)
Corrected serum calcium of >ULN - 2.9 mmol/l
(ULN = upper limit of normal)

Grade 2 (Amber)
Corrected serum calcium >2.9 - 3.0 mmol/l
Often asymptomatic and does not usually require urgent correction

Grade 3 (Red)
Corrected serum calcium >3.0 - 3.4 mmol/l. May be well tolerated if risen slowly but may be symptomatic and prompt treatment is usually

Grade 4 (Red)
Corrected serum calcium >3.4 mmol/l. Requires urgent correction due to the risk of dysrhythmia and coma

Is patient known to have an active malignancy?

If NO - Check FBC, ESR, U&Es, LFT, TFT, PTH, cortisol, vitamin D & myeloma screen, start IVI & seek advice from endocrinologist – consider new cancer. Review need for any drugs, which may affect renal blood, flow e.g. NSAIDs, diuretics, ACEIs, ARBs

If YES - Is this the first episode of hypercalcaemia?

If 1st episode of hypercalcaemia, give 2-4 litres of 0.9% sodium chloride IV in the first 24 hours, followed by zoledronic acid 4mg IV in 100ml 0.9% sodium chloride over 15 minutes.or pamidronate, dose according to corrected calcium. Seek advice from endocrinologist. Review need for any drugs, which may affect renal blood, flow e.g. NSAIDs, diuretics, ACEIs, ARBs

If 2nd or subsequent episode of hypercalcaemia, give 2-4 litres of 0.9% sodium chloride IV, followed by zoledronic acid 4mg IV in 100ml 0.9% sodium chloride.Review need for any drugs, which may affect renal blood, flow e.g. NSAIDs, diuretics, ACEIs, ARBs

If creatinine clearance is <30ml/min (GFR<10), do not give bisphosphonate. SEEK ADVICE. Zoledronic acid dose needs to be reduced if renal impairment present. Monitor for fluid overload

Recheck U&E & calcium after 4-7 days or sooner if need to monitor fluid replacement

SfE Acute Hypercalcaemia

SDEC management may be appropriate if the patient is clinically suitable.
DO NOT GIVE FURTHER BISPHOSPHONATE UNTIL AT LEAST 4 DAYS AFTER PREVIOUS DOSE.
Maximum effect not seen yet – there is a risk of hypocalcaemia if further bisphosphonate given too soon. If calcium remains elevated **SEEK Endocrinology /oncology ADVICE regarding second line management.** Check calcium weekly, levels remain high, and it is 3 weeks or more since last dose of bisphosphonate, give zoledronic acid 4mg IV; if less than 3 weeks since last dose of bisphosphonate, **SEEK Endocrinology /oncology ADVICE** *especially if renal impairment present.*

Inform the Acute Oncology Team of the patient's assessment and/or admission as soon as possible.
Immediate advice is available from the Acute Oncology Service or the 24-Hour Oncology on call rota.
WITHHOLD SACT, including oral therapy, until you have discussed with the Acute Oncology or Site Specific Team.

GUIDELINE 36.
Hypomagnesaemia

A disorder characterised by laboratory test results that indicate a low concentration of magnesium in the blood. Many anti-cancer drugs and drugs commonly used in cancer patients, e.g. diuretics and antibiotics can cause or contribute to low magnesium. Patients with severe treatment related diarrhoea are also at risk. Normal magnesium range = 0.70 – 0.99 mmol/L (Values will be lab assay specific).

Questions:
- Are they on any contributory medications? E.g. PPI's
  - Do any medications need caution? E.g. antiemetics
- Are they on any anti-cancer treatment? If so, what?
- Do they have any nausea, vomiting or diarrhoea?

Examination: Clinical evaluation, history, physical examination, and review observations.
- Neuromuscular Irritability: Hyperactive deep tendon reflexes; muscular fibrillation; +ve Trousseau (facial nerve hypersensitivity) & Chvostek (metacarpal hyper flexion) signs; dysarthria or dysphagia secondary to oesophageal dysmotility
- CNS Hypersensitivity: Irritability and combativeness; disorientation; psychosis; ataxia, vertigo, nystagmus & seizures.

Observations: Calculate and monitor NEWS score.

Investigations:
- Check bloods including potassium levels and Ca^{2+}
- ECG – Findings could include Prolonged QT interval, Paroxysmal atrial and ventricular dysrhythmias; repolarisation alternans. Consider continuous cardiac monitoring.

Symptoms:
- > 0.50mmol/L - most patients may be asymptomatic
- < 0.50mmol/L - patients may have non-specific symptoms but may then go on to develop:
  - Cardiac or muscle related symptoms such as weakness, cramping, tachycardia / palpitations
  - Neurological complaints can be that of vertigo, ataxia, depression, and in severe cases seizures or altered mental state.

Grade 1 (Green)
< LLN - 0.5 mmol/L

- These patients are typically asymptomatic
- Consider oral Magnesium replacement to avoid a fall to critical levels
- Encourage Mg rich diet e.g. spinach, pumpkin seeds, avocado, almonds.

Grade 2 (Amber)
< 0.4 - 0.5 mmol/L

- Consider oral Magnesium replacement to avoid a fall to critical levels
- Consider Intravenous Magnesium if symptomatic or unable to tolerate oral supplements. Check bloods in 24 - 48 hours
- Correct any other electrolyte imbalance as necessary
- Encourage Mg rich diet e.g. spinach, pumpkin seeds, avocado, almonds.

Grade 3 (Red)
< 0.3 – 0.4 mmol/L

Grade 4 (Red)
< 0.3 mmol/L
Life threatening consequences

- Admit for administration of Magnesium Sulfate by intravenous infusion
- In severe cases such as cardiac arrhythmias
- Magnesium Sulphate can be given as a bolus but under HDU / ITU supervision
- Correct any other electrolyte imbalance as necessary
- Consider continuous cardiac monitoring.

NICE: Magnesium Sulphate

Inform the Acute Oncology Team of the patient's assessment and/or admission as soon as possible.
Immediate advice is available from the Acute Oncology Service or the 24-Hour Oncology on call rota.
WITHHOLD SACT, including oral therapy, until you have discussed with the Acute Oncology or Site Specific Team.

GUIDELINE 37.
Hyponatraemia

Hyponatraemia can be defined as serum sodium <135 mmol/L. The clinical significance of hyponatraemia depends on its severity, its speed of onset and its underlying cause. Severe hyponatraemia can be life threatening.

Questions: The clinical signifiance of hyponatraemia depends on

- Severity/grade?
- Speed of onset? – Acute < 48 hours. Chronic > 48 hours or more
- Underlying cause? – range and degree of disease and co-morbidities. Could this be caused by the anti-cancer treatment

Examination: Clinical evaluation, history, physical examination, and review of observations.

Observations: Calculate and monitor NEWS score. Fluid balance.

Investigations: FBC, U&Es. Cortisol, Thyroid Function, LFT, Paired Serum and Urine Osmolalities, to confirm true hypo–osmolar hypoNa, Urinary Sodium Concentration, Plasma Glucose to exclude hyperglycaemia as a cause.

Symptoms:

Mild or absent	Moderately severe	Severe
Lethargy	Vomiting Nausea without vomiting Confusion Headache	Cardiorespiratory arrest Reduced level of consciousness GCS less than 8 Seizures

Management decisions should be based on presenting clinical symptoms rather than the degree of hyponatraemia.

- Severe symptoms are unlikely with serum sodium >130 mmol/L and alternative causes of neurological dysfunction should be considered in this context
- The severity of symptoms may not match the degree of hyponatraemia: profound hyponatraemia may be symptom free, while some patients with moderate biochemistry may have significant signs and symptoms.

Grade 1 (Green)
130–135 mmol/L

- Monitor -consider repeat U&E in one /two weeks
- Ask patient to report any new or worsening symptoms.

Grade 2 (Amber)
125–129 mmol/L and asymptomatic

- Monitor – consider repeat U&E in 48-72 hours
- Ask patient to report any new or worsening symptoms.

Grade 3 (Red)
125 to 129 mmol/L and symptomatic or 120 to 124 regardless of symptoms

- Urgent senior clinical assessment in SDEC/ admit
- Urgent Endocrinology referral/discussion
- Careful fluid assessment and monitoring.

Grade 4 (Red)
< 120 mmol/L. regardless of symptoms, Life threatening consequences

- Urgent senior clinical assessment in SDEC/ admit
- Urgent Endocrinology referral/discussion
- Careful fluid assessment and monitoring
- Consider critical care admission.

The decision to treat with hypertonic fluid and supervision of treatment should be the responsibility of a senior clinician with appropriate training and skill.

The aim is to achieve a 5mmol/l rise in serum Na+ within the first hour, reducing immediate danger from cerebral oedema while minimising the risk of over-rapid correction and osmotic demyelination.

SfE Emergency management of severe hyponatraemia

Inform the Acute Oncology Team of the patient's assessment and/or admission as soon as possible.
Immediate advice is available from the Acute Oncology Service or the 24-Hour Oncology on call rota.
WITHHOLD SACT, including oral therapy, until you have discussed with the Acute Oncology or Site Specific Team.

GUIDELINE 38.
Malignant Pericardial Effusion

An accumulation of fluid within the pericardial sac leading to an effusion can be a presenting symptom in acute oncology patients. Two thirds of cancer patients have subclinical pericardial effusions with no overt cardiovascular signs or symptoms. 50% of cases initially present with symptoms of cardiac tamponade. Symptoms are often attributed to underlying cancers and are often a pre-terminal event; however, prompt diagnosis and management can achieve significant palliation.

Questions:
- Cancer diagnosis/primary disease
- Cardinal questions related to breathlessness
- What anti-cancer therapy has the patient had? E.g. Radiation-induced pericarditis or SACT-induced pericarditis.

Examination:
- Elevated JVP
- NEWS – Tachycardia, Hypotension, Hypoxia
- Pulsus paradoxus (an abnormally large decrease in pulse and systolic blood pressure (>20mmHg) with inspiration)
- Kussmauls's sign (increased distension of jugular veins with inspiration).

Observations: Calculate and monitor NEWS score.

Investigations:
- FBC, U&E, CRP, Clotting, consider blood gases
- Chest X-ray may show a widened cardiac shadow
- Echocardiography to evaluate the size of the effusion and degree of haemodynamic compromise
- ECG may show small complexes.

Symptoms:

Dyspnoea (majority)	Fatigue, or asthenia may be the initial symptoms	Chest pain (worse on lying flat)
Cough	Orthopnoea	Fever

Most malignant pericardial effusions result from direct malignant involvement with the pericardium - Disease progression.Other causes include:

Chest infection	Myocarditis	Acute Coronary Syndrome
Pulmonary embolism (PE)	Ascending aortic aneurysm - Due to indwelling intravascular catheter	

Grade 1 (Green)
CTCAE – commences at Grade 2 in this condition

Grade 2 (Amber)
Asymptomatic effusion size small to moderate

Grade 3 (Red)
Effusion with physiologic consequence

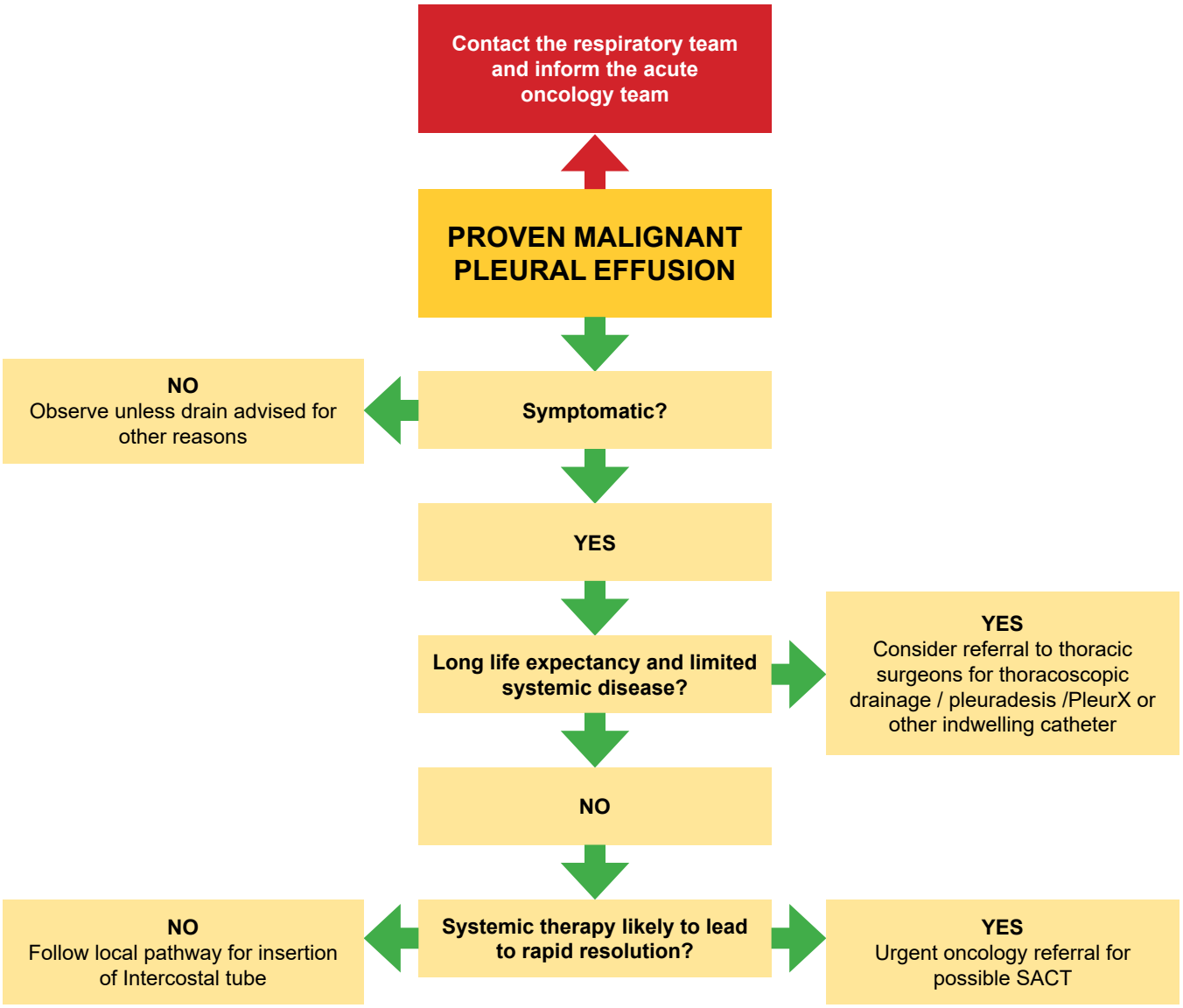
Grade 4 (Red)
Cardiac tamponade - life-threatening consequences. urgent intervention required

- Enquire regarding signs of sepsis/productive cough - escalate to Grade 3 Red as appropriate
- Early referral to cardiology for management advice
- Telephone/review patient within 24 hours and ask patient to contact the 24-hour advice line if symptoms worsen.

- Admit patient for on-going assessment, monitoring and symptom management
- Withhold anticoagulation
- Consider immediate therapeutic drainage if cardio-vascular compromise
- Treatment is best managed with urgent referral to cardiology or cardiothoracic surgical teams – contact SpR on call
- All treatment options should be balanced against the patient's symptoms, overall performance status, level of disease and predicted benefits.

Inform the Acute Oncology Team of the patient's assessment and/or admission as soon as possible.
Immediate advice is available from the Acute Oncology Service or the 24-Hour Oncology on call rota.
WITHHOLD SACT, including oral therapy, until you have discussed with the Acute Oncology or Site Specific Team.

GUIDELINE 39.
Malignant Pleural Effusion



NOTE: there may be an ambulatory service available locally for the management of stable patients requiring drainage of pleural effusion – contact the respiratory or acute oncology team for advice.

Inform the Acute Oncology Team of the patient's assessment and/or admission as soon as possible.
Immediate advice is available from the Acute Oncology Service or the 24-Hour Oncology on call rota.
WITHHOLD SACT, including oral therapy, until you have discussed with the Acute Oncology or Site Specific Team.

GUIDELINE 40.
Suspected New Malignancy

The aim of this pathway is to enable early identification of patients that would benefit from anti-cancer treatment and to prevent unnecessary investigations in those patients who are unfit for treatment or do not wish to proceed with treatment. NICE MUO Guidance.

INITIAL ASSESSMENT

Observations: Calculate NEWS score.

History: Full history including rate of change of symptoms. Assess and record current performance status and co-morbidities.

Assess/establish patients understanding and wishes with regards to investigation and potential treatment pathway.

Examination: Complete full clinical examination (including breast, lypmh node, testicular, skin examination and PR / PV if clinically indicated).

Laboratory Investigations:

- All patients: FBC, U&Es, LFT, Ca2+, LDH, CRP
- Men with midline disease /brain metastases: Serum aFP and bhCG
- Women with pelvic or peritoneal disease: CA125
- Men with bone metastases: PSA
- Patients with liver only disease: aFP
- Consider myeloma screen - for bone lesion seen on scan with no obvious primary – immunoglobulins/electrophoresis, serum free light chains and urine for bence jones protein
- If FBC is abnormal – request blood film which may demonstrate a haematological malignancy such as lymphoma/leukaemia or suggest the possibility of bone marrow metastases
- Urinalysis for blood
- Patients with altered bowel habit: consider CEA
- Ascites – diagnostic tap, send fluid for cytology.

Note: other tumour markers are generally not useful in diagnosis.

Imaging:

- CT thorax, abdomen and pelvis is the staging investigation of choice in most circumstances
- Consider brain imaging if clinically indicated
- Other investigations (including endoscopies) only as indicated by signs and symptoms.

Suitability for ongoing investigations:

- Patients with a solitary metastasis should be referred to the appropriate specialist team before biopsy
- All other patients, assess fitness and suitability for biopsy to establish histology to guide future treatment
- Detailed clinical information on the request form is essential.

FURTHER MANAGEMENT

- **Discuss with the Acute Oncology Team**
- If clinical, radiological, and pathological findings suggest a specific cancer primary refer to relevant MDT (please see guidance below)
- Otherwise refer to Cancer of Unknown Primary (CUP) MDT and/ or Acute Oncology Team (consider local protocol)
- **Please ensure patient is informed of results and that they are being investigated for suspected cancer**
- **Please ensure patient is aware of plan for onward referral –some patients may be managed as outpatients if the appropriate infrastructure is in place**
- **Early** referral to **palliative care** for advice on symptom management and continuing care should be considered where appropriate.

PATTERNS OF DISEASE REQUIRING URGENT SPECIFIC ACTION

- Spinal cord compression **– urgent referral to acute oncology team and/or spinal cord co-ordinator. Consider SDEC assess to admit**
- Men with midline disease **– urgent referral to oncology (? germ cell)**
- Superior Vena Cava Obstruction **– urgent referral to respiratory team and lung MDT for consideration of stent**
- Suspected lymphoma, myeloma, plasmacytoma **– urgent referral to haematology.**

PATTERNS OF DISEASE REQUIRING SPECIFIC ACTION

- Men with bone metastasis and elevated PSA – referral to urology MDT
- Women with axillary nodes – referral to breast surgeons/ MDT
- Women with peritoneal disease – referral to gynaecology / MDT, unless histology suggests non-gynaecology origin
- Solitary liver lesion – requires referral to hepatobiliary MDT
- Neck nodes – requires referral to head and neck or neck nodes clinic as appropriate locally
- Isolated brain metastasis – requires referral to neurology MDT.

Always make sure that the Acute Oncology Team are informed of patient's assessment and/or admission as soon as possible. Immediate advice is available from the Acute Oncology on call rota.

GUIDELINE 41.
Pneumonitis - Radiation or SACT induced

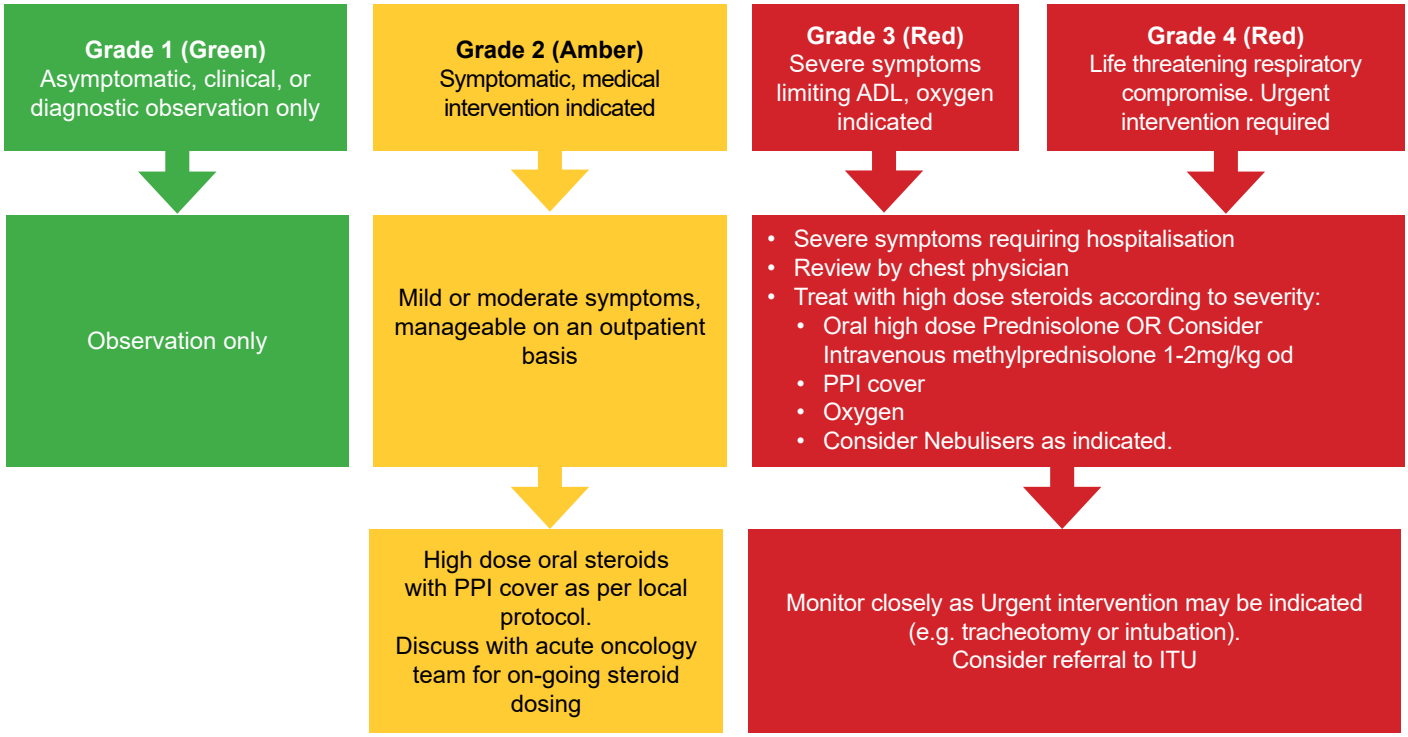
Definition: A disorder characterized by inflammation focally or diffusely affecting the lung parenchyma.

Questions:
- When did the patient last radiotherapy?
- Was the radiotherapy given to the thoracic region?
  - Clinical radiation pneumonitis may develop in 20% of lung carcinoma patients: The median time to onset of symptoms is 3 weeks after radiation therapy (but may be up to 3 months)
- Is the patient on SACT and when was this last given?
- What SACT drugs where given?
- Not all cause pneumonitis
- If they have had an immunotherapy see Guideline 24

Examination: Clinical evaluation, history, physical examination, and review of observations.

Investigations:
- FBC, U&E, LFT's, CRP, and consider respiratory swabs
- Chest X-ray & ECG
- Calculation of Wells score
- CT (high resolution and CTPA) to exclude cancer progression and pulmonary embolus
- Monitor oxygen saturation and consider ABGs if saturations low.

Signs and Symptoms: The development of acute or sub-acute dyspnoea, which after history and examination does not reveal pneumonia, tumour recurrence, or any other specific aetiology.
- Mild hypoxia
- Pleural rub/effusion
- Fine crepitations – widespread if drug induced, localised if following focal radiation
- Low grade fever
- In addition to dyspnoea, there may be a new or worsening cough
- Clinical pneumonitis, or inflammation of the lung(s), can often display non-specific signs.



Inform the Acute Oncology Team of the patient's assessment and/or admission as soon as possible.
Immediate advice is available from the Acute Oncology Service or the 24-Hour Oncology on call rota.
WITHHOLD SACT, including oral therapy, until you have discussed with the Acute Oncology or Site Specific Team.

GUIDELINE 42.
Superior Vena Cava Obstruction (SVCO)

SVCO is an obstructive emergency that may occur as the result of progression of a malignancy or may be the diagnostic symptom. SVCO is caused by external pressure, thrombus or direct tumour invasion causing obstruction of the superior vena cava and occurs in 3-8% of patients with cancer.

Questions:
- Does the patient have a Cancer diagnosis? Where is the primary disease?
- Have they had recent radiology?
- Cardinal questions related to breathlessness.

Examination: Clinical evaluation, history, physical examination, and review of observations.

Observations: Calculate and monitor NEWS score.

Investigations: FBC, U&E, Coagulation, CTPA to define tumour extent, site of occlusion or stenosis and extent of any thrombus. SVCO can be an incidental finding on CT.

Signs and Symptoms:

Stridor- due to laryngeal oedema	Non-pulsatile JVP	Dilated anterior chest wall veins
Swelling of face, neck, arms	Confusion	Coma
Cyanosis	increased RR	Dyspnoea
Dizziness	Headaches– worse on stooping	Visual changes
Chest pain		

Differential diagnosis would include:

Chest infection	Pulmonary embolism (PE)	Disease progression i.e., consolidation / pleural effusion
New Cancer diagnosis or metastatic disease	Ascending aortic aneurysm (due to indwelling intravascular catheter)	

Seek advice from the Acute Oncology and/or the Respiratory team as soon as possible to guide investigations and management.

Grade 1 (Green)
Oedema in head or neck, vascular distension; plethora

Grade 2 (Amber)
Oedema in head or neck with functional impairment (mild dysphagia, cough, visual disturbances)

Grade 3 (Red)
Mild or moderate cerebral oedema (headache, dizziness) or mild/moderate laryngeal oedema or diminished cardiac reserve (syncope after bending), cyanosis

Grade 4 (Red)
Significant cerebral oedema (confusion) or significant laryngeal oedema (stridor) or significant haemodynamic compromise

- Enquire regarding signs of infection - escalate to Grade 3 Red as appropriate
- Consider steroid therapy to manage symptoms of oedema and prevent deterioration
- Advise patient about maintaining an upright or semi-fowlers position and encourage them to monitor their skin colour
- Discuss with the Acute Oncology team – arrange urgent oncology and/or respiratory review
- Telephone/review patient within 24 hours and ask patient to contact the 24-hour advice line if symptoms worsen or persist.

- Admit for further assessment and on-going management.
- Monitor for evidence of:
  - Desaturation
  - Infection
  - SACT/chemotherapy toxicities
  - Haemodynamic compromise
- Address life threatening symptoms e.g. stridor
- Treatment initially aimed at symptom management
- Commence high dose steroids + PPI – if not contraindicated
- Seek Urgent Advice from the Acute Oncology and/or the Respiratory team to guide investigations and management.

Manage in accordance with trust local guidelines depending upon differential diagnosis and clinical status.
Further management may include:
- Stent insertion – performance status
- Chemotherapy – performance status
- Radiotherapy – any contraindications e.g. previous radiotherapy to chest. Inability to lie flat
- If thrombus is present, consider anticoagulation if no contraindications.

Inform the Acute Oncology Team of the patient's assessment and/or admission as soon as possible.
Immediate advice is available from the Acute Oncology Service or the 24-Hour Oncology on call rota.
WITHHOLD SACT, including oral therapy, until you have discussed with the Acute Oncology or Site Specific Team.

Glossary

ABCDE approach	Airway, Breathing, Circulation, Disability and Exposure	**ABG**	Arterial Blood Gas
ACE-inhibitors	Angiotensin-converting enzyme inhibitors	**ACTH**	Adrenocorticotropic hormone
ABX	Antibiotics	**ADL**	Activities of daily living
AKI	Acute kidney injury	**ALT**	Alanine aminotransferase
Anti-TPO Ab	Antithyroid Peroxidase Antibody	**Anti-Xa I**	Anti–factor Xa assay
APTT	Actvated Partial Thromboplastin Time	**ARDS**	Acute Respiratory Distress Syndrome
AST	Aspartate aminotransferase	**BRAF**	BRAF is a human gene that encodes a protein called B-Raf
BSA	Body surface area	**Ca^{2+}**	Calcium
CEA	Carcinoembryonic antigen	**CDT screen**	Connective Tissue Disease
CK	Creatine Kinase	**CLL**	Chronic lymphocytic leukaemia
CMV	Cytomegalovirus	**COPD**	Chronic obstructive pulmonary disease
CRP	C-Reactive Protein Test	**C&S**	Culture and sensitivity
CTPA	Computed tomography pulmonary angiography	**CVAD**	Central Venous Access Device
CXR	Chest X-ray	**DIC**	Disseminated intravascular coagulation
DNACPR	Do Not Attempt Cardiopulmonary Resuscitation	**DPD deficiency**	Dihydropyrimidine dehydrogenase deficiency
DVT	Deep vein thrombosis	**EBV**	Epstein- Barr virus
ECG	Electrocardiogram	**EGFR antagonists**	Epidermal growth factor receptor antagonists
EMG	Electromyography	**ESR**	Erythrocyte sedimentation rate
FBC	Full Blood Count	**Free T4**	Free thyroxine 4
Free T3	Free Thyroxine 3	**FSH**	Follicle stimulating hormone
gGT	Gamma-glutamyl transferase	**GCSF**	Granulocyte-colony stimulating factor
GI	Gastrointestinal	**HSV**	Herpes simplex virus
HbA1c	Haemoglobin A1c	**HDU**	High dependency unit
ICPi	Immune checkpoint inhibitors	**IGF-1**	Insulin-like growth factor
INR	International normalised ratio	**irAE**	Immune-Related Adverse Event
ITP	Idiopathic thrombocytopenic purpura	**ITU**	Intensive therapy unit
JVP	Jugular venous pressure	**LDH**	Lactate dehydrogenase enzyme
LH	Luteinizing hormone	**LLN**	Lower limit of normal
LMWH	Low molecular weight heparin	**MEK inhibitors**	Mitogen-activated protein kinase enzymes
MMF	Mycophenolate mofetil	**MRA**	Magnetic resonance angiography
MRI	Magnetic Resonance Imaging	**MSCC**	Metastatic spinal cord compression
MTOR inhibitors	Mammalian Target of Rapamycin Inhibitors	**NEWS**	National Early Warning Score
NSAIDs	Non-steroidal Anti-inflammataory Drugs	**PE**	Pulmonary embolism
PJC	Premature Junctional Complex	**PJP**	Pneumocystis Jiroveci Pneumonia
PPE	Palmar-plantar erythrodysesthesia	**PPI**	Proton pump inhibitor
PR	Per rectum	**PSA**	Prostate-specific antigen
SACT	Systemic Anti-Cancer Therapy	**SALT**	Speech and language therapy
SOB	Shortness of breath	**SVCO**	Superior vena cava obstruction
SDEC	Same Day Emergency Care	**TKI**	Tyrosine kinase inhibitor
TSH	Thyroid stimulating hormone	**U&E**	Urea and Electrolytes
ULN	Upper limit of normal	**VTE**	Venous thromboembolism
VQ	Ventilation–perfusion scan	**5FU**	5 Fluorouracil

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Appendix 1

UKONS Oncology Nursing Society

ONCOLOGY/HAEMATOLOGY ADVICE LINE

TRIAGE TOOL, VERSION 2 (NOVEMBER 2016)

All Green = self care advice | 1 Amber = review within 24 hours | 2 or more amber = escalate to red | Red = attend for assessment as soon as possible

Patients may present with problems other than those listed below, these would be captured as "other" on the log sheet checklist. Practitioners are advised to refer to the NCI-CTCAE common toxicity criteria V4.03 to assess the severity of the problem and/or seek further clinical advice regarding management.

CAUTION! Please note patients who are receiving or have received **IMMUNOTHERAPY** may present with treatment related problems at anytime during treatment or up to 12 months afterwards. If you are unsure about the patient's regimen, be cautious and follow triage symptom assessment.

Toxicity/Symptom	0	1	2	3	4
Fever - receiving or has received Systemic Anti Cancer Treatment (SACT) within the last 6-8 weeks or immunocompromised.	None.	**IF TEMPERATURE 37.5˚c or ABOVE or BELOW 36.0˚c or GENERALLY UNWELL - URGENT assessment and medical review - Follow neutropenia pathway.** **ALERT - patients who have taken analgesia or steroids or who may be dehydrated may not present with an abnormal temperature but may still have an infection and be at risk of sepsis - if in doubt do a count.**			
Chest pain STOP oral and intravenous Systemic Anti Cancer Treatment until reviewed by oncology or haematology team.	None.	**Advise URGENT A&E for medical assessment- 999** **NB if infusional SACT in place arrange for disconnection.**			
Dyspnoea/shortness of breath Is this a new symptom? How long for? Is it getting worse? Do you have a cough? How long for? Is it productive? If yes, what colour is your phlegm/spit? Is there any chest pain or tightness? - if yes refer to chest pain Consider: SVCO / Anaemia / Pulmonary embolism / Pneumonitis / Infection.	None or no change from normal.	New onset shortness of breath with moderate exertion.	New onset shortness of breath with minimal exertion.	Shortness of breath at rest.	Life threatening symptoms.
Performance Status Has there been a recent change in performance status?	No change to pre-treatment normal - or fully active,able to carry on all pre-disease performance without restriction.	Restricted in physically strenuous activity but ambulatory and able to carry out work of a light or sedentary nature, such as light housework or office work.	Ambulatory and capable of all self care but unable to carry out any work activities. Up and about more than 50% of waking hours.	Capable of only limited self care, confined to bed or chair for more than 50% of waking hours.	Completely disabled. Cannot carry out any self care. Totally confined to bed or chair.
Diarrhoea How many days has this occurred for? How many times in a 24 hour period? Is there any abdominal pain or discomfort? Is there any blood or mucus in the stool? Has the patient taken any antidiarrhoeal medication? Is there any change in urine output? Is the patient drinking and eating normally? Consider: Infection / Colitis / Constipation. N.B. Patients receiving immunotherapy or Capecitabine should be managed according to the drug specific pathway and assessment arranged as required.	None or no change from normal.	Increase of up to 3 bowel movements a day over pre-treatment normal or mild increase in ostomy output. Drink more fluids Obtain stool sample. Commence regimen specific antidiarrhoeal.	Increase of up to 4-6 episodes a day or moderate increase in ostomy output or nocturnal movement or moderate cramping. Drink plenty of fluids Obtain stool sample. Commence regimen specific antidiarrhoeal. If diarrhoea persists after taking regimen specific antidiarrhoeal escalate to red. If patient is or has been on immunotherapy escalate to red →	Increase of up to 7-9 episodes a day or severe increase in ostomy output or incontinence / severe cramping /bloody diarrhoea.	Increase>10 episodes a day or grossly bloody diarrhoea.
Constipation How long since bowels opened? What is normal? Is there any abdominal pain and/or vomiting? Has the patient taken any medication? Assess the patients urinary output and colour.	None or no change from normal.	Mild - no bowel movement for 24 hours over pre-treatment normal. Dietary advice, increase fluid intake, review supportive medications.	Moderate - no bowel movement for 48 hours over pre-treatment normal. If associated with pain / vomiting move to red. Review fluid and dietary intake. Recommend a laxative.	Severe - no bowel movement for 72 hours over pre-treatment normal.	No bowel movement for >96 hours - consider paralytic ileus.
Urinary Disorder Are you passing urine normally? Is this a new problem or is this normal for you? Is there any change in the urine colour? Is there any blood in the urine? Is there any incontinence, frequency or urgency? Are you passing your normal amount? Are you drinking normally, are you thirsty? Consider: Infection	None or no change from normal.	Mild symptoms. Minimal increase in frequency, urgency, dysuria nocturia. Slight reduction in output. Drink more fluids. Obtain urine sample for analysis.	Moderate symptoms. Moderate increase in frequency, urgency, dysuria nocturia. Moderate reduction in output. Drink more fluids. Obtain urine sample for analysis.	Severe symptoms. Possible obstruction/retention New incontinence New or increasing haematuria Severe reduction in output	Little or no urine output.
Fever **NOT** receiving Systemic Anti Cancer Treatment (SACT) and **NOT** at risk of immunosuppression.	Normal.		< 36.0˚c or > 37.5˚c - 38.0˚c	>38.0˚c - 40.0˚c	> 40.0˚c
Infection Has the patient taken their temperature? If so when? What is it? - if pyrexial see fever toxicity. Are there any specific symptoms, such as: • pain, burning / stinging or difficulty passing urine? • cough, any sputum, if so what colour? • any shivering, chills or shaking episodes?	None.	Localised signs of infection otherwise generally well.	Signs of infection and generally unwell * If on active SACT treatment follow neutropenic sepsis pathway. * If not on active treatment arrange urgent local review.	Signs of severe symptomatic infection.	Life threatening sepsis.
Nausea How many days? What is the patient's oral intake? Is the patient taking antiemetics as prescribed? Assess patient's urinary output and colour.	None.	Able to eat/drink reasonable intake. Review anti emetics according to local policy.	Able to eat/drink but intake is significantly decreased. Review anti emetics according to local policy.	No significant intake.	
Vomiting How many days? How many episodes? What is the patient's oral intake? Is there any constipation or diarrhoea? - if yes see specific toxicity. Assess patient's urinary output and colour	None.	1-2 episodes in 24 hours. Review anti emetics according to local policy.	3-5 episodes in 24 hours. Review anti emetics according to local policy.	6-10 episodes in 24 hours.	>10 episodes in 24 hours.
Oral / stomatitis How many days? Are there any mouth ulcers? Is there evidence of infection? Are they able to eat and drink? Assess patient's urinary output and colour.	None.	Painless ulcers and/or erythema, mild soreness but able to eat and drink normally. Use mouthwash as directed.	Painful ulcers and/or erythema, mild soreness but able to eat and drink normally. Continue with mouthwash as directed, drink plenty of fluids. Use painkillers either as a tablet or mouthwash.	Painful erythema, difficulty eating and drinking.	Significant pain, minimal intake and/or reduced urinary output.
Anorexia What is appetite like? Has this recently changed? Any recent weight loss? Any contributory factors, such as dehydration, nausea, vomiting, mucositis, diarrhoea or constipation - if yes refer to specific problem/symptom.	None or no change from normal.	Loss of appetite without alteration in eating habits. Dietary advice.	Oral intake altered without significant weight loss or malnutrition. Dietary advice.	Oral intake altered in association with significant weight loss/malnutrition.	Life threatening complications, such as collapse.
Pain Is it a new problem? Where is it? How long have you had it? Have you taken any pain killers? Is there any swelling or redness? If pain associated with swelling or redness consider **thrombosis or cellulitis.** Back pain consider **metastatic spinal cord compression (MSCC).**	None or no change from normal.	Mild pain not interfering with daily activities. Advise appropriate analgesia.	Moderate pain interfering with daily activities. Advise appropriate analgesia.	Severe pain interfering with daily activities.	Severe disabling pain.
Neurosensory / motor When did the problem start? Is it continuous? Is it getting worse? Is it affecting mobility/function? Any perineal or buttock numbness (Saddle paresthesia)? Any constipation? Any urinary or faecal incontinence? Any visual disturbances? Is there any pain? If yes refer to specific problem / symptom. **Consider** - Metastatic spinal cord compression, cerebral metastases or cerebral event.	None or no change from normal.	Mild paresthesia, subjective weakness. No loss of function. Contact the advice line immediately if deterioration.	Mild or moderate sensory loss, moderate paresthesia, mild weakness with no loss of function.	Severe sensory loss, paresthesia or weakness that interferes with function.	Paralysis.
Confusion/cognitive disturbance Is this a new symptom? How long have you had this symptom? Is it getting worse? Is it constant? Any recent change in medication?	None or no change from normal.	Mild disorientation not interfering with activities of daily living. Slight decrease in level of alertness.	Moderate cognitive disability and/or disorientation limiting activities of daily living.	Severe cognitive disability and/or severe confusion; severely limiting activities of daily living. Altered level of consciousness. 999 - Urgent assessment in A&E.	Life threatening consequences. Loss of consciousness/unrousable. 999 - Urgent assessment in A&E.
Fatigue Is this a new problem? Is it getting worse? How many days? Any other associated symptoms? Do you feel exhausted?	None or no change from normal.	Increased fatigue but not affecting normal level of activity. Rest accompanied with intermittent mild activity / exercise.	Moderate or interfering with some normal activities.	Severe or loss of ability to perform some activities.	Bedridden or disabling.
Rash Where is it? Is it localised or generalised? How long have you had it? Is it getting worse? Is it itchy? Are you feeling generally unwell? Any signs of infection, such as pus, pyrexia Moderate = 10-30% of the body surface area (BSA) Severe = greater than 30% of the body surface area (BSA) NB Haematology, follow local guidelines.	None or no change from normal.	Rash covering <10% BSA with or without symptoms, such as pruritus, burning, tightness.	Rash covering 10 - 30% BSA that is limiting normal activities of daily living with or without symptoms, such as pruritus, burning, tightness. Or bleeding with trauma or signs of associated infection.	Rash covering >30% BSA with or without associated symptoms; limiting self care activities. Spontaneous bleeding or signs of associated infection.	
Bleeding Is it a new problem? Is it continuous? What amount? Where from? Are you taking anticoagulants? NB Haematology, follow local guidelines.	None or no change from normal.	Mild, self limited controlled by conservative measures. Consider arranging a full blood count.	Moderate bleeding. 999 - Urgent assessment in A&E.	Severe bleeding. 999 - Urgent assessment in A&E.	Massive bleed. 999 - Urgent assessment in A&E.
Bruising Is it a new problem? Is it localised or generalised? Is there any trauma involved?	None or no change from normal.	Localised - single bruise in only one area.	Multiple sites of bruising or one large site.		
Ocular/eye problems Is this a new problem? Any associated pain? Any visual disturbance? Any discharge/sticky eyes?	None or no change from normal.	Mild symptoms not interfering with function.	Moderate to severe symptoms interfering with function and/or any visual distrubance.		
Palmar Plantar syndrome If on active oral SACT therapies follow drug specific pathways. Drug may need to be suspended and medical review arranged.	None.	Mild numbness, tingling, swelling of hands and/or feet with or without pain or redness. Rest hands and feet, use emollient cream.	Painful redness and/or swelling of hands and/or feet. Follow drug specific pathway - may require dose reduction or treatment deferral. Advise painkillers.	Moist desquamation, ulceration, blistering and severe pain. Follow drug specific pathway - arrange urgent appointment for review by specialist team within 24 hours. May require dose reduction or treatment deferral. Advise painkillers.	
Extravasation Any problems after administration of treatment? When did the problem start? Is the problem around or along the injection site? Has the patient got a central line in place? Describe the problem.	None.	Non Vesicant. Review the next day.	Vesicant or drug not known. Arrange urgent review.		

SoR Standards for Oncology Review

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Appendix 1

HOSPITAL NAME / DEPT:

UKONS 24 HOUR TRIAGE LOG SHEET (V2 2016)

Patient Details	Patient History	Enquiry Details
Name: Hospital no..... DOB..... Tel no.....	Diagnosis: Male ☐ Female ☐ Consultant..... Has the caller contacted the advice line previously Yes ☐ No ☐	Date..... Time..... Who is calling? ..... Contact no..... Drop in Yes ☐ No ☐

Reason for call
(in patients own words)

Is the patient on active treatment? SACT ☐ Immunotherapy ☐ Radiotherapy ☐ Other ☐ Supportive ☐ No ☐

State regimen..... Are they part of a clinical trial Yes ☐ No ☐

When did the patient last receive treatment? 1-7 days ☐ 8-14 days ☐ 15-28 days ☐ Over 4 weeks ☐

What is the patient's temperature? ☐ °C (Please note that hypothermia is a significant indicator of sepsis)

Has the patient taken any anti-pyretic medication in the previous 4-6 hours Yes ☐ No ☐

Does the patient have a central line? Yes ☐ No ☐ Infusional pump in situ Yes ☐ No ☐

CAUTION! Please note patients who are receiving or have received **IMMUNOTHERAPY** may present with treatment related problems at anytime during treatment or up to 12 months afterwards. If you are unsure about the patient's regimen, be cautious and follow triage symptom assessment.

Advise	24 hour follow up	Assess
Remember: two ambers equal red!		
Fever - on SACT		
Chest Pain		
Dyspnoea/shortness of breath		
Performance Status		
Diarrhoea		
Constipation		
Urinary disorder		
Fever		
Infection		
Nausea		
Vomiting		
Oral/stomatitis		
Anorexia		
Pain		
Neurosensory/motor		
Confusion/cognitive disturbance		
Fatigue		
Rash		
Bleeding		
Bruising		
Ocular/eye problems		
Palmar Plantar syndrome		
Extravasation		
Other, please state:		

Significant medical history

Current medication

Action Taken

Attending for assessment, receiving team contacted Yes ☐ No ☐

Triage practitioner

Signature..... Print..... Designation..... Date / /

Follow Up Action Taken:

Consultants team contacted Yes ☐ No ☐ Date / /

Signature..... Print..... Designation..... Date / / Time:

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