Introduction to Acute Oncology - eLearning

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Intended audience & objectives

- ✓ This e-learning module is an introduction to adult acute oncology services (ages 16 years and above)
- ✓ It aims to provide learners with knowledge of acute oncology key principles, enabling them to recognise conditions and initiate action appropriately, ensuring safe and timely high quality care.

- ✓ **The training applies to all registered healthcare professionals in contact with cancer patients, including the following groups:**
  - ❑ Nurses
  - ❑ Allied Health Professionals
  - ❑ Medical staff
  - ❑ ED Doctors

- ✓ On completing this e-learning, you should:
  - ❑ Understand the background of acute oncology
  - ❑ Understand the roles of your local acute oncology team and how to contact / refer to them
  - ❑ Be able to identify common acute oncology problems, recognising their signs and symptoms
  - ❑ Know who to refer to for support when managing acute oncological problems

- ✓ Cancer management is **COMPLEX.** There is a large multidisciplinary team involved in each patients care. It is the expectation that **staff** in direct contact with oncology patients will be able to identify concerning signs and symptoms, and be confident to raise concerns.

What is Acute Oncology (AO)?

- Many patients will require **emergency** support at some point, this may be because of acute problems that occur relating to their cancer or the treatments that they are receiving.
- An Acute Oncological event is when a patient with cancer becomes **acutely unwell** or develops a new problem that needs **emergency** care, due to their cancer or the treatments they receive.

AO in Acute Hospitals

- ✓ Acute Oncology Services have been established in all Hospitals (with an emergency department) with the aim of providing better coordination of services, better care and better outcomes for cancer patients:

  - ❑ Reducing mortality
  - ❑ Improving patient safety
  - ❑ Improving patient outcomes
  - ❑ Improving patient experience
  - ❑ Potentially helping to reduce length of stay

- ✓ AO teams advise regarding management of acute patient problems from an oncology perspective.
- ✓ They play a key role in supporting emergency department and medical teams with management decisions, helping avoid inappropriate investigations and treatments and supporting patients during their admission.
- ✓ **You may be part of your local Trust AO Team!**

AO at The Specialist Cancer Centre

- **Local Trust AOS's will have their own processes.** Specialist Cancer Centres such as ***The Christie NHS Trust*** services will differ in their processes, therefore their Acute Oncology service is run differently in order to support teams working on the site and allied local acute trusts.

- Acute Oncology may be supported by:
  - ❑ Acute Oncology Management Service (AOMS) 24/7 Hotline (advice line) team. This service can be accessed by all local Trust AOS's and health care professionals for any cancer patient under the care of the specialist cancer centre.
  - ❑ Acute Oncology Outreach Nursing team (AOONS) (24/7 service)

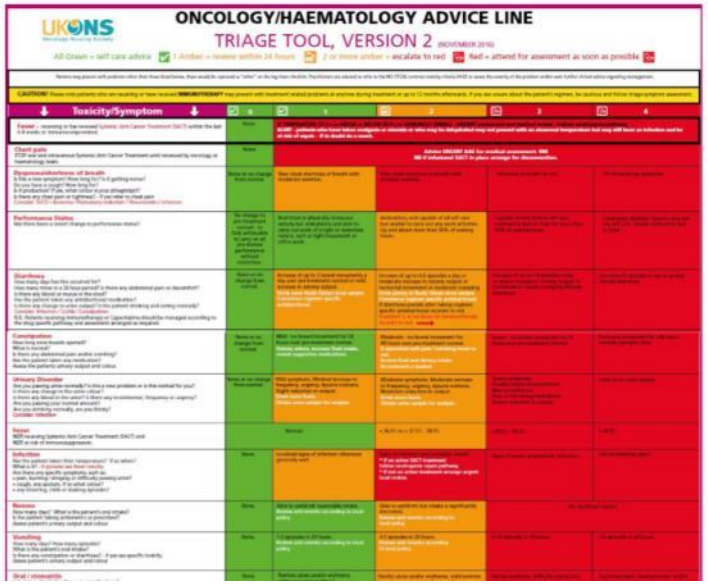
    Outreach team duties:
    - ❑ Primary responder providing clinical support in the management of acutely unwell patients and support for nursing / medical staff in clinical areas
    - ❑ Clinical review and assessment of patients (including out of hours urgent admissions)
    - ❑ Facilitate the safe transfer of patients into CCU and follow up patients post critical care discharge
    - ❑ Advise on Trust protocols / policies related to AO
    - ❑ Support the 24/7 AOMS Hotline
  - ❑ Acute admissions unit

AOMS at The Christie

24/7 to all Christie Registered Patients

0161 446 3658

- Cancer patients are at risk of developing acute problems due to the treatment they are given, or as a result of the disease itself.
- Patients calling the Hotline (AOMS) will be triaged according to their symptoms and advised on appropriate management (this may include admission) using the UKONS triage tool.



- All patients (and their carers) on treatment should be made aware of the 24 Hour AOMS Hotline and how to get in touch if they have concerns.
- Contact details can be found in all Christie patient booklets, and via the dedicated Hotline card / leaflet.

✓ **AOMS can also be contacted by professionals for support, advice and information on treatment history.**

✓ **Your local acute oncology team (AOT) can also provide support and information.**

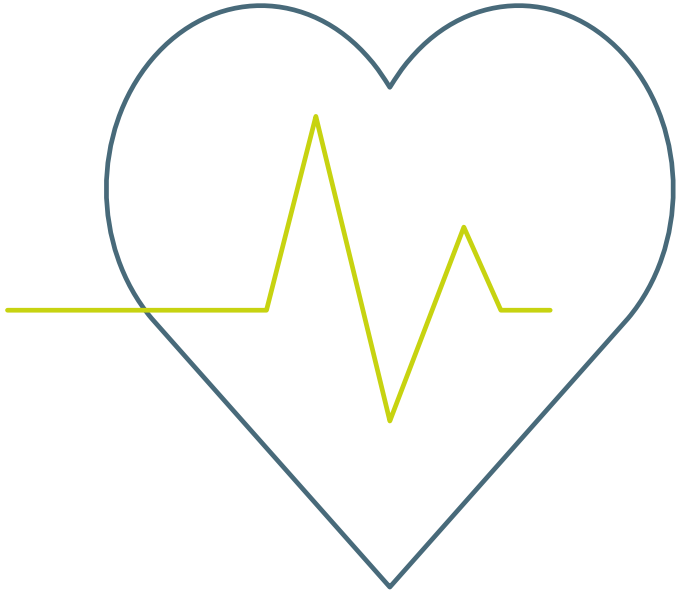
What causes an ACUTE problem?

- Complications from **SACT (Systemic Anti-Cancer Therapy)**
- Complications from **Radiotherapy**
- Complications from the Cancer itself (includes patients with a new finding of malignancy or a malignancy of unknown origin)

Initial approach to acutely ill cancer patient

- Should be similar to patients without cancer
  - But disease status and response to current treatment, overall prognosis and patient and family wishes should be rapidly assessed in order to establish an appropriate treatment plan.

- Comprehensive assessment
  - Presentation due to:
    - ❑ Disease itself
    - ❑ Treatment related
    - ❑ New or existing condition unrelated to cancer



What is SACT? – No longer just chemo

There are now a vast number of drugs available to treat cancer. These drugs work in different ways to fight cancer cells in the body.

Systemic Anti-Cancer Therapy (SACT) is the term used to encompass all of these anti-cancer drugs:

- Cytotoxic chemotherapy – A group of medicines containing chemicals that are directly toxic to cells, preventing their replication or growth, so making them active against cancer.
- Immunotherapy – Treatments using the body's own immune system to fight cancer, or lessen the side effects that may be caused by some cancer treatments.
- Targeted therapies – A group of medicines that target molecular pathways in cancer cells impacting upon their replication or growth, so making them active against cancer. These include hormone therapies.

SACT

Chemotherapy

Immunotherapy

Systemic Anti Cancer Therapy

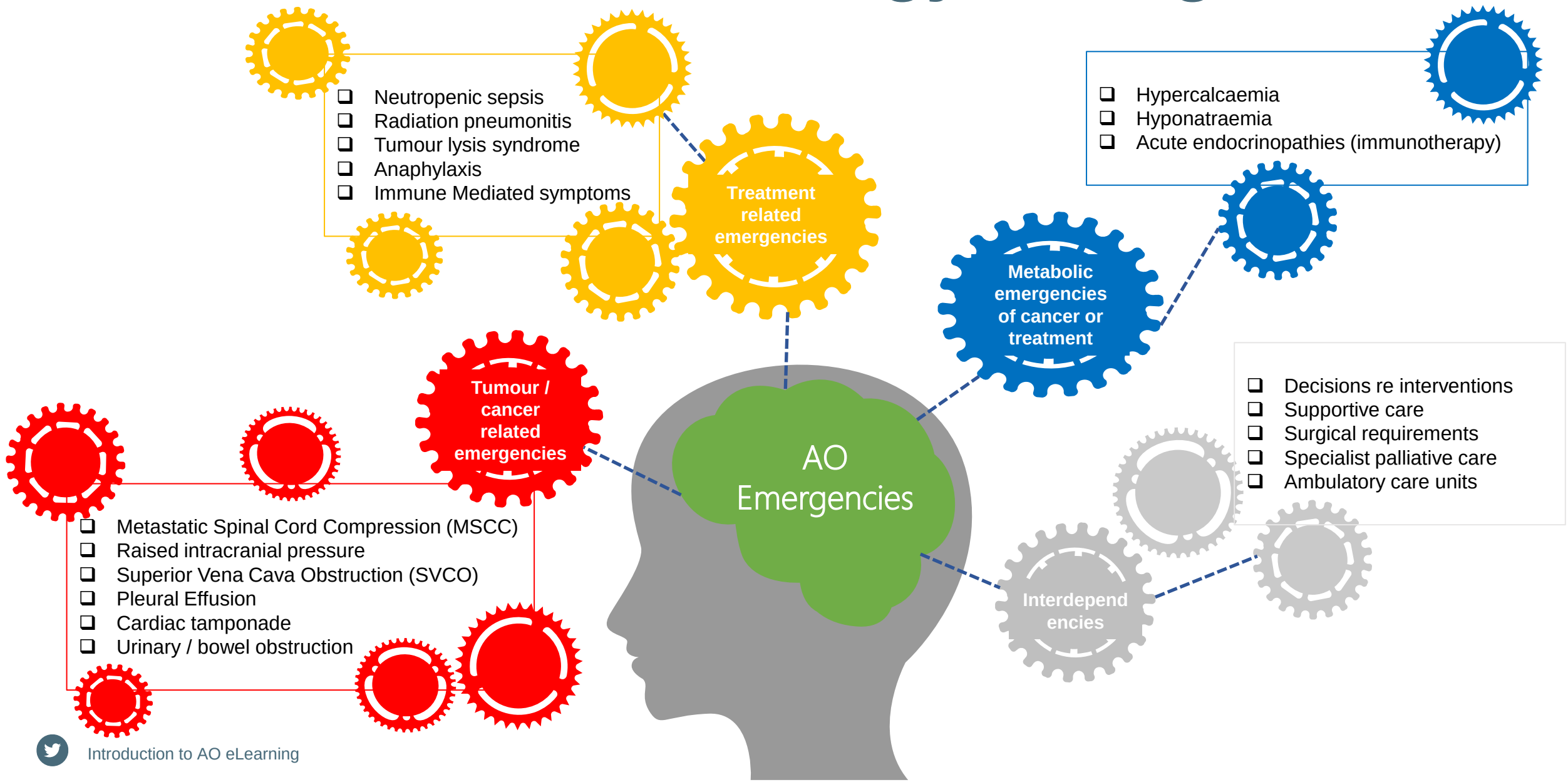
Targeted Therapy:

- TKI's (tyrosine kinase inhibitors)
- Hormone therapy
- Monoclonal antibodies

Radiotherapy

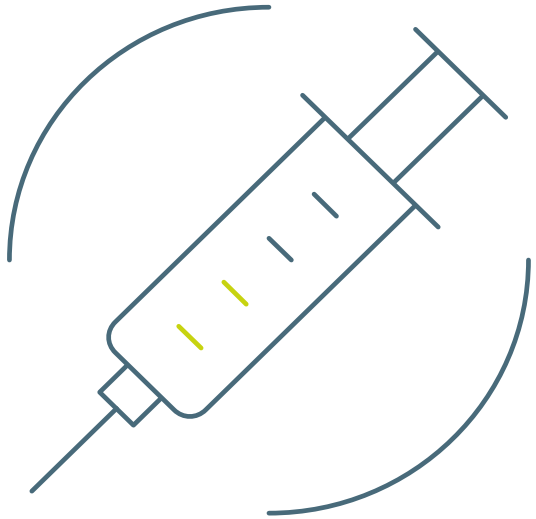
Full list - https://www.cancerresearchuk.org/about-cancer/cancer-in-general/treatment/targeted-cancer-drugs/types

Classification of Oncology Emergencies



AO presentations caused by cytotoxic chemotherapy (Dependent on drug given)

- Neutropenic sepsis
- Uncontrolled nausea and vomiting
- Uncontrolled diarrhoea
- Uncontrolled mucositis
- Acute Kidney Injury (AKI)
- Tumour Lysis syndrome
- Hypomagnesaemia
- Extravasation injury
- Acute hypersensitivity reactions including anaphylactic shock
- Skin reactions
- Complications with venous access devices / central lines



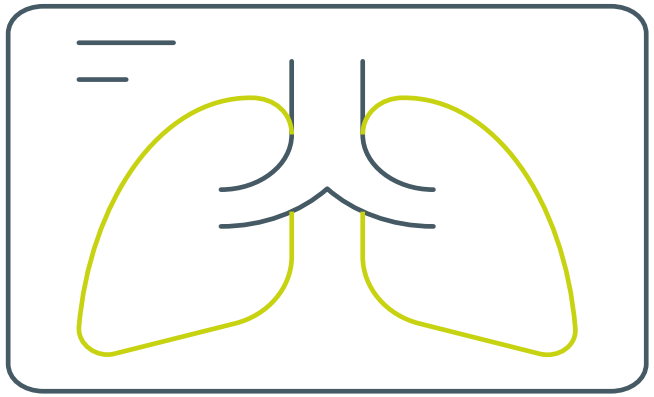
AO presentations caused by biological therapy (Dependent on drug given)

It is **important to remember** that patients who are receiving immunotherapy treatment will have a significantly different side effect profile that traditional cytotoxic chemotherapy:

- Endocrinopathies – Adrenal Crisis / Thyroid Dysfunction
- Diarrhoea
- Neuropathy
- Pneumonitis
- Hepatotoxicity's
- Skin Toxicity
- Renal Toxicity
- Hypophysitis
- Neurological Toxicity

Acute oncology presentations caused by radiotherapy (Dependent on treatment site)

- Acute skin reactions
- Uncontrolled nausea and vomiting
- Uncontrolled diarrhoea
- Uncontrolled mucositis
- Acute radiation pneumonitis
- Acute cerebral / other CNS oedema
- Airway compromise / stridor in patients receiving radiotherapy to head and neck
- Nutritional problems and severe dehydration leading to acute kidney injury



AO presentations caused by malignant disease: This is not an exhaustive list…

- Pleural effusion
- Pericardial effusion
- Lymphangitis carcinomatosis
- Superior Vena Cava Obstruction (SVCO)
- Abdominal ascites
- Hypercalcaemia
- Spinal Cord Compression including MSCC
- Cerebral space occupying lesion(s)
- Acute Kidney Injury (AKI) – obstructive nephropathy

2021/21 Plan - please search links online to:

VISION
A comprehensive Macmillan / UKONS Education Pathway for Acute Oncology / Acute Cancer Care

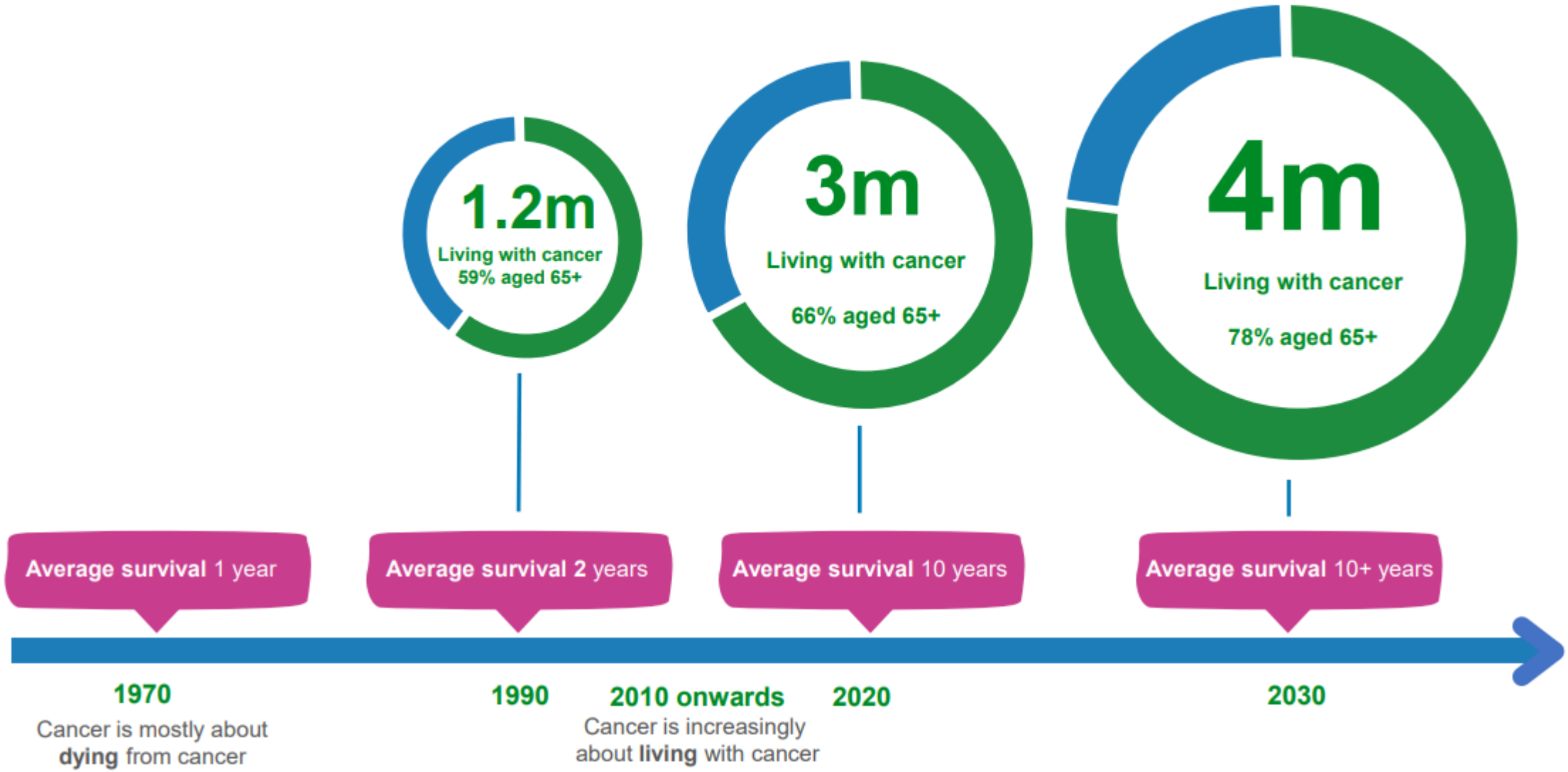
Level 1
Macmillan virtual classroom & e-learning:
Introduction to Acute Oncology

Level 2
UKONS/Guys Cancer Academy/HEE open access e-learning

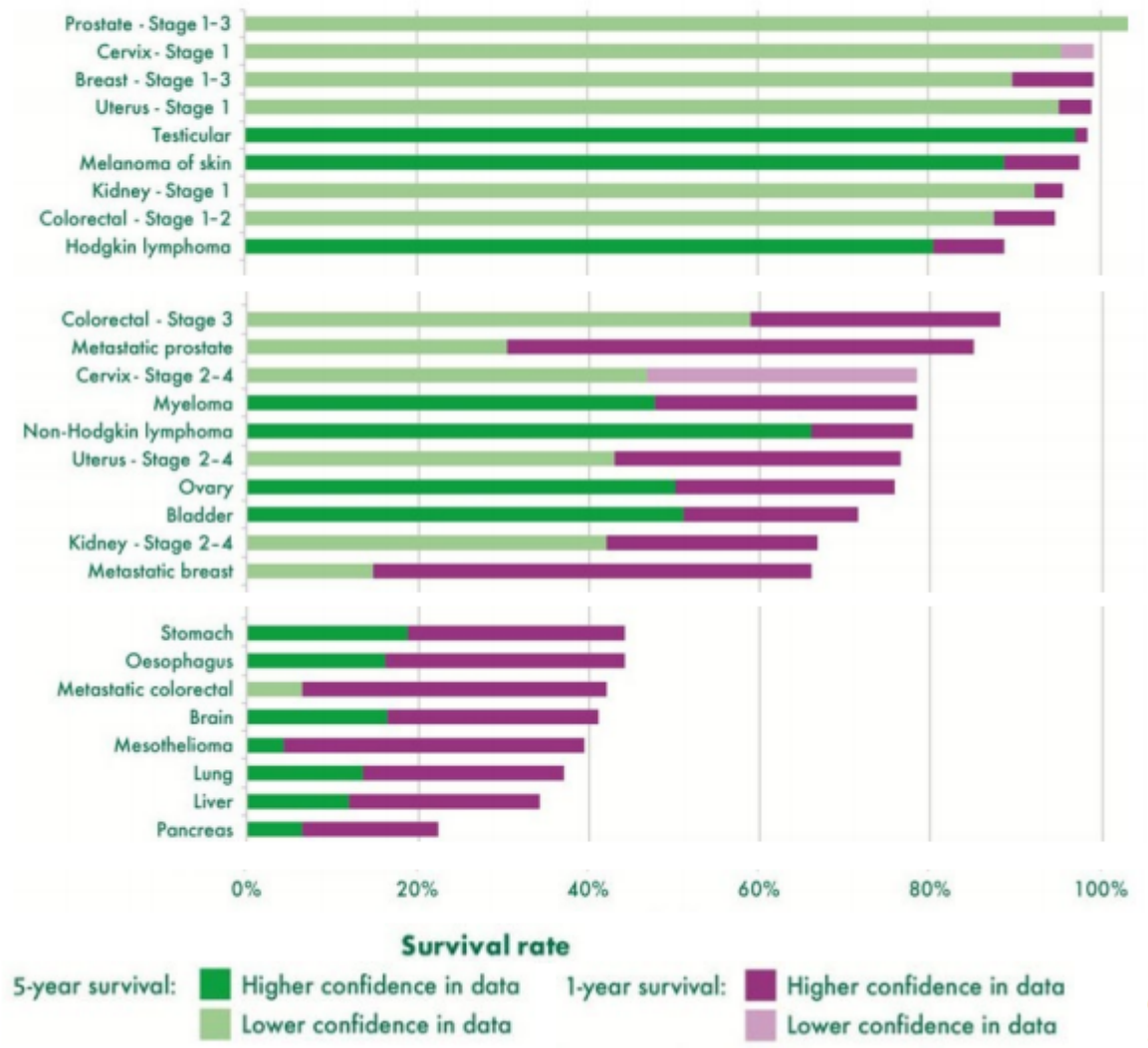
Level 3
Guys Cancer Academy accredited e-learning module with Kings

Level 4
Macmillan work-based learning (EWBL) BSc/MSc Module

The changing cancer story



The three cancer groups



Group 1
Many live for more than a decade

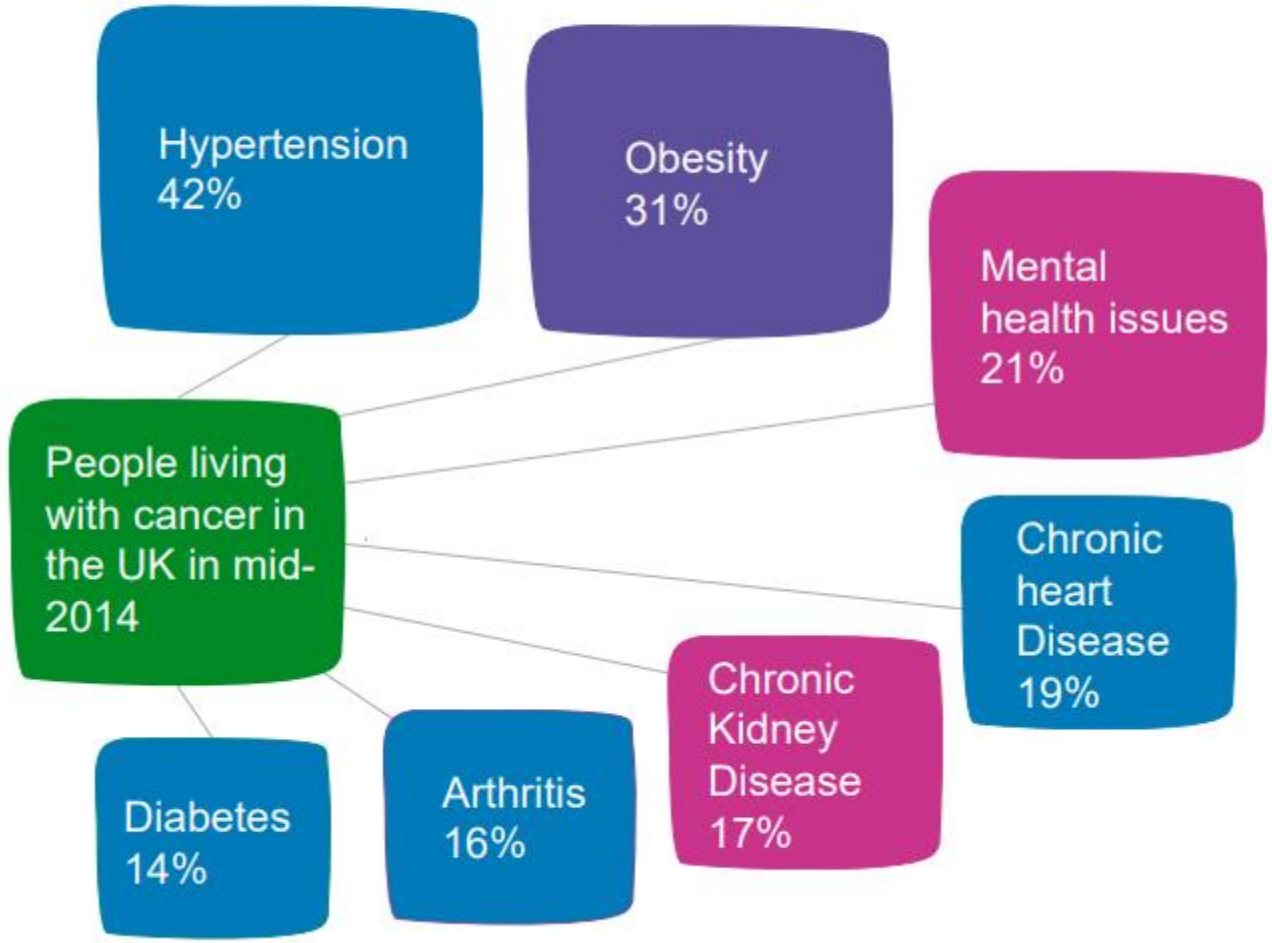
Group 2
Most similar to a long-term condition

Group 3
Survival for the majority is short term

McConnell, H. White, R. And Maher, J. *Explaining the different complexity, intensity and longevity of broad clinical needs*. 2015.

MACMILLAN CANCER SUPPORT

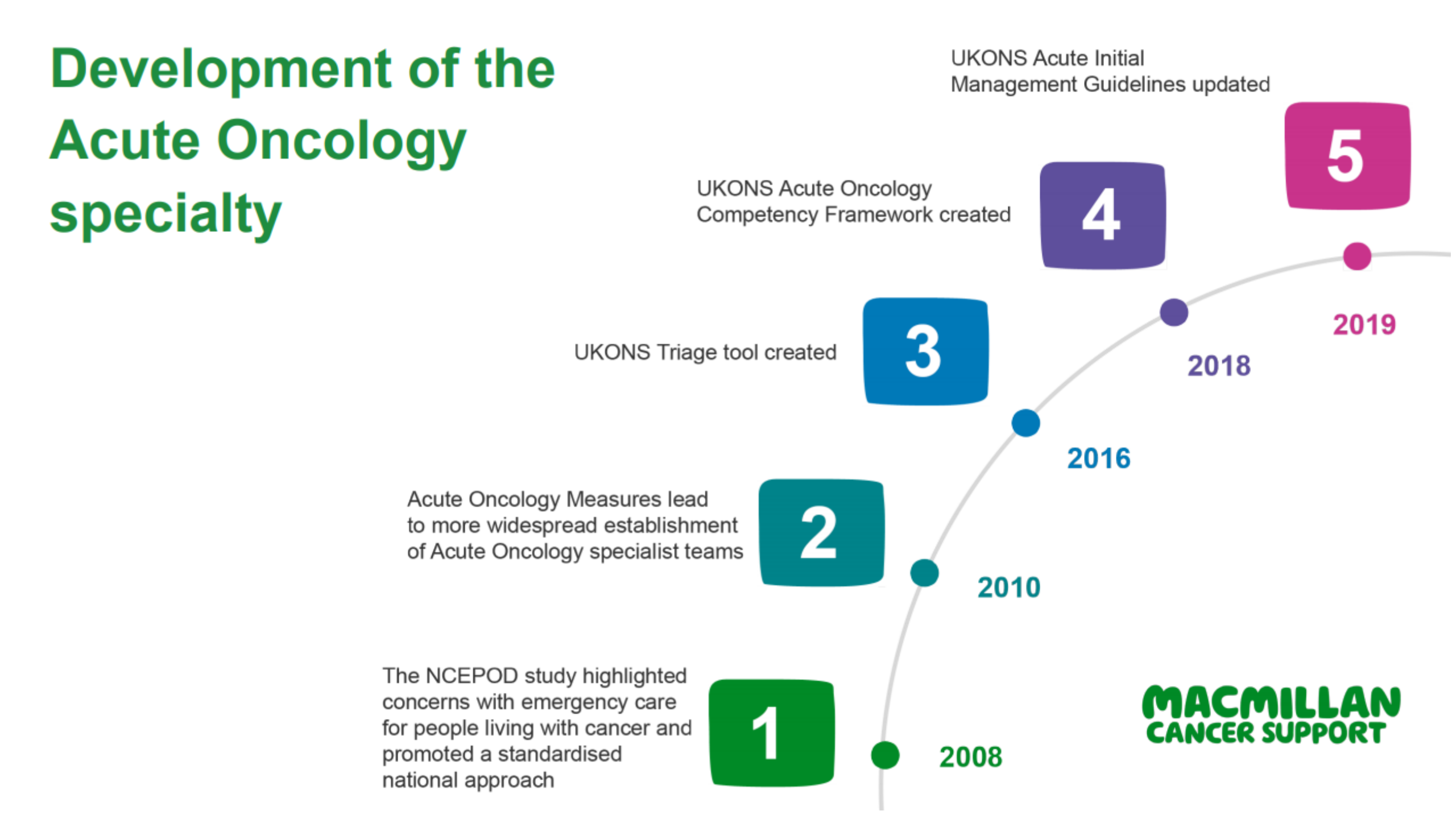
Increasingly people live with multiple conditions



Macmillan Cancer Support. *Cancer in the context of other long-term conditions. Scoping evidence review and secondary data analysis*. 2015.

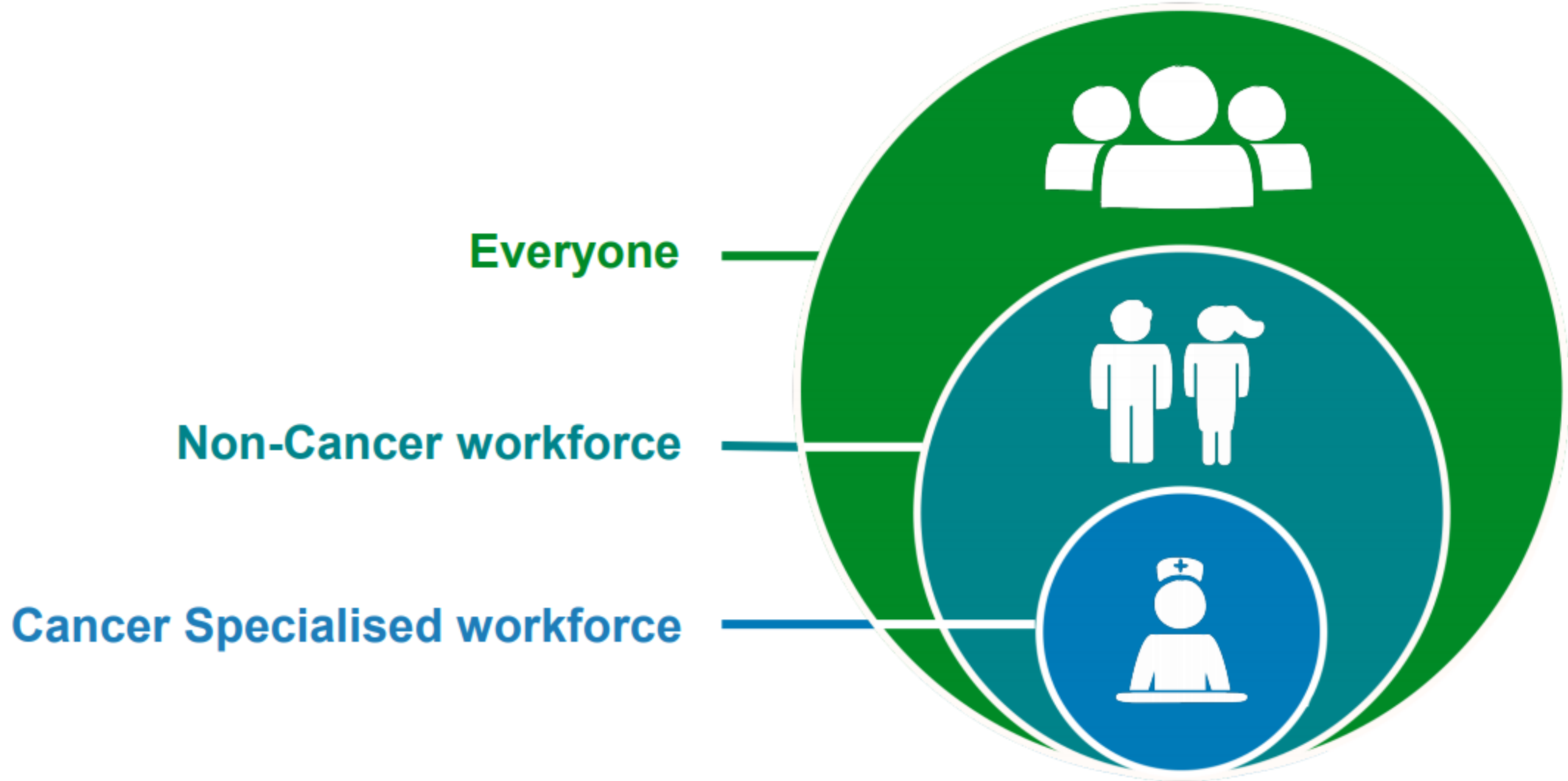
MACMILLAN CANCER SUPPORT

Development of the Acute Oncology specialty



MACMILLAN CANCER SUPPORT

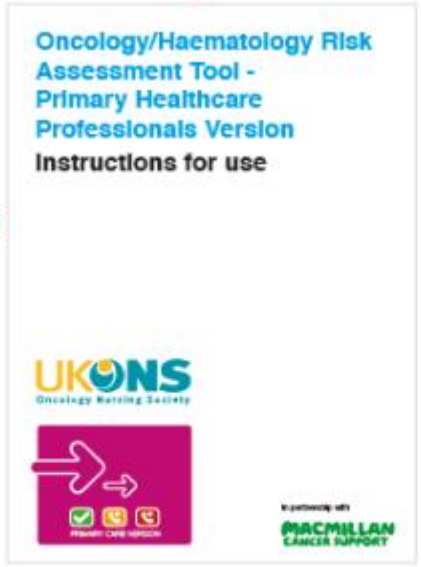
Acute Cancer Care



Acute Oncology Resources – cancer workforce

Primary and community care

Emergency Services



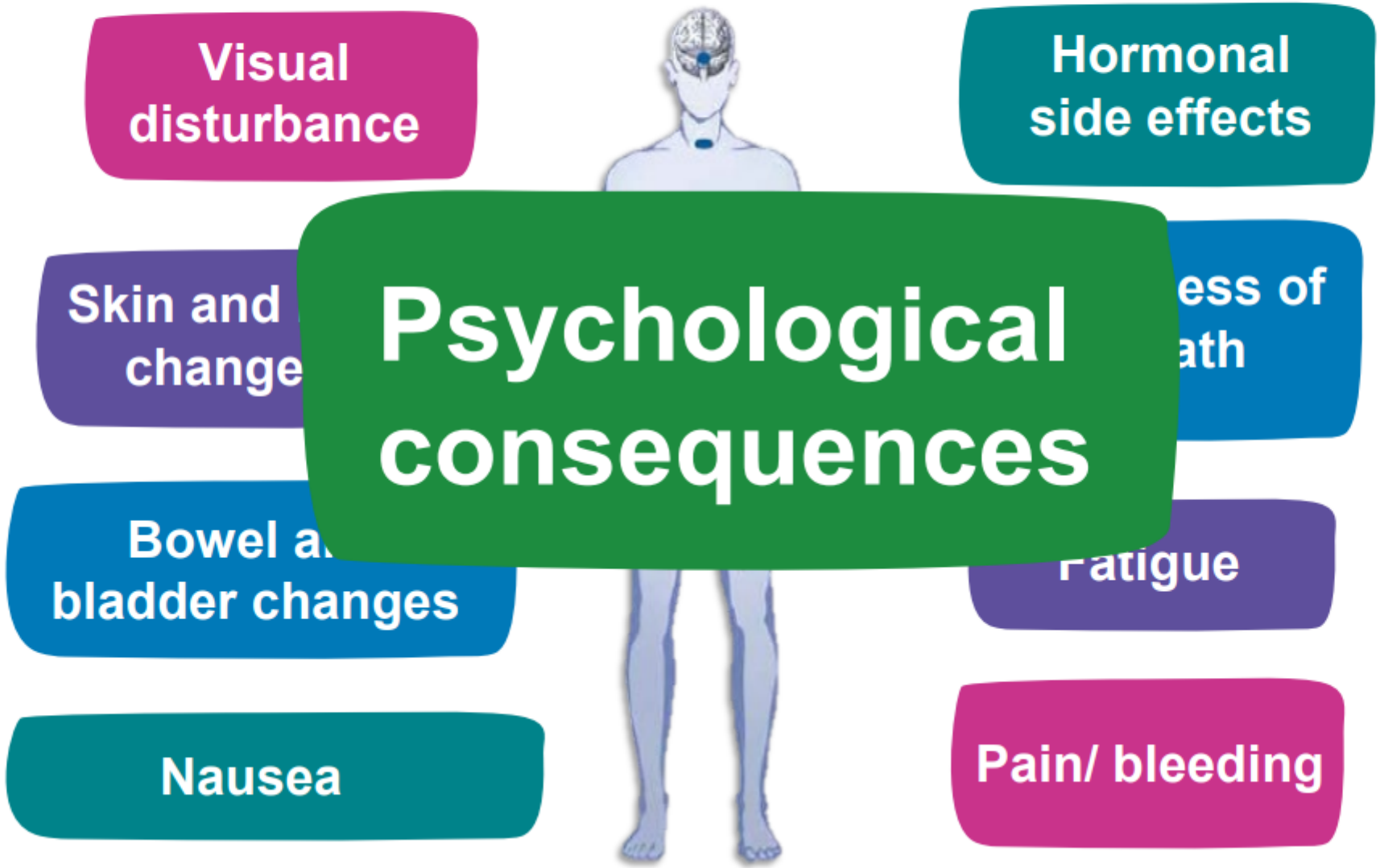
24 hour AO advice lines

Looks similar to Primary Care Triage Tool but is aimed at AO specialists

Urgent Care ED/AMU

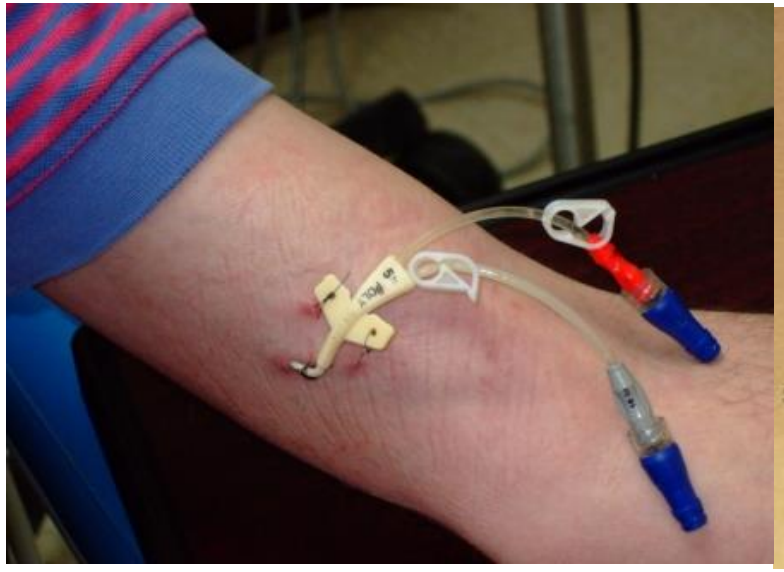
Acute Oncology Services

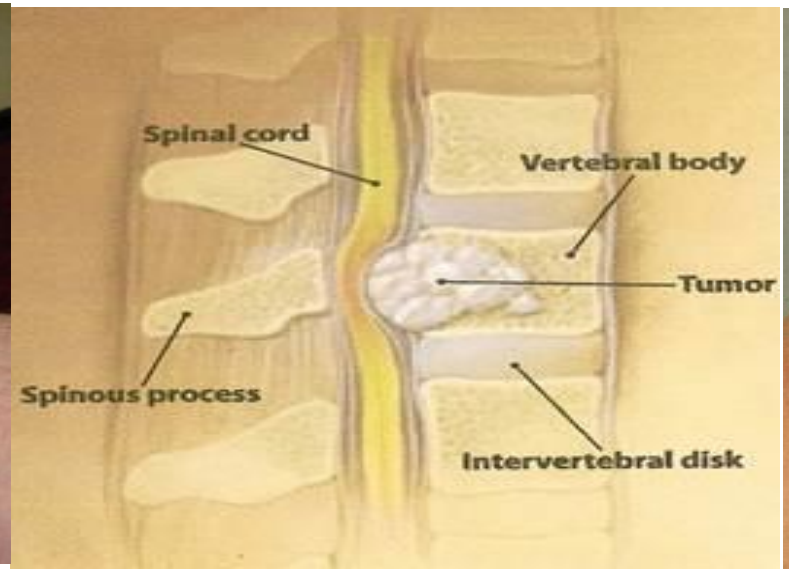
Common side effects from cancer treatments

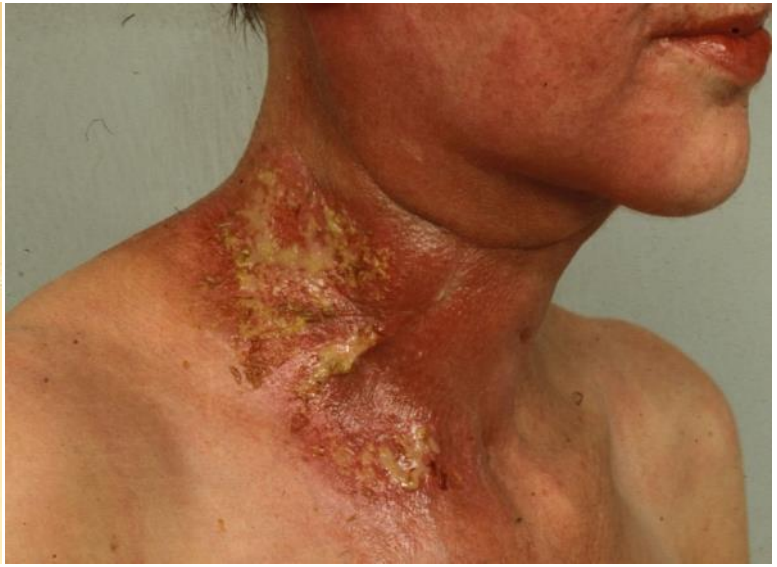


Acute events

We will now look at some of the most common and KEY AO emergencies, identifying the signs and symptoms patients may present with.







Topics

	Validated by	Date / Comment:
Neutropenic sepsis	Danielle.Musgrave@pat.nhs.uk & katie.mantinieks@nhs.net	22 Oct 21 - Refreshed
Radiotherapy	mark.reed4@nhs.net& c.greenbaum@nhs.net	03 Mar 21 - Complete
Superior Vena Cava Obstruction (SVCO)	claire.mitchell34@nhs.net	22 Feb 21 - Complete
Metastatic Spinal Cord Compression (MSCC)	lena.richards@nhs.net	23 Nov 20 - Complete
Mucositis	konstantinos.kamposioras@nhs.net	05 Jan 21 - Complete
Immunotherapy	laura.cove-smith@nhs.net	08 Nov 21 - Complete
Carcinoma of unknown primary (CUP)	claire.mitchell34@nhs.net	22 Oct 21 - Refreshed
Cellulitis & Lymphoedema	LCasserley@sah.org.uk	07 Jun 21 - Complete
Tumour Lysis Syndrome	claire.mitchell34@nhs.net	22 Feb 21 - Complete
Hypercalcaemia	konstantinos.kamposioras@nhs.net	05 Jan 21 - Complete
Extravasation	crawford.meek@nhs.net & rhona.johnson2@nhs.net	10 Jun 21 - Complete
Bowel Obstruction	konstantinos.kamposioras@nhs.net	05 Jan 21 - Complete
AKI	katerina.pearson@nhs.net & aisling.walsh3@nhs.net	22 Oct 21 - Refreshed
Pain	claire.mckenzie13@nhs.net	12 Apr 21 - Complete
Venous Thromboembolic Disease	prerana.huddar@nhs.net	08 Nov 21 - Complete
Mental Health and Trauma informed care	padraigmcdonnell@nhs.net	24 Mar 21 - Complete
Patient Centred Communications	alison.franklin10@nhs.net	19 Jan 22 - Complete
Prehab4Cancer	zoe.merchant@nhs.net	04 Dec 20 - Complete

Neutropenic sepsis

MoU NURS60093 (Level 7) – Week 2 Learning

PATIENT INFORMATION LINK:

Validated 22 Feb 21 & 22 Oct 21– Danielle.Musgrave@pat.nhs.uk & katie.mantinieks@nhs.net

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REFERENCES:

NICE guidelines (NG51) – Sepsis: recognition, diagnosis and early management: 2016;updated 2017

NICE guideline (NG15) – Antimicrobial stewardship: systems and processes for effective antimicrobial medicine use: 18 August 2015

Neutropenic Sepsis

Neutropenic sepsis is a potentially life-threatening complication of neutropenia (low neutrophil count). It is defined as a temperature of greater than 38° C or any symptoms and / or signs of sepsis, in a person with an absolute neutrophil count of 0.5 x 109/L or lower.

Sepsis can lead to shock, multiple organ failure and death if not recognised and treated promptly. When someone develops neutropenia and sepsis together, we call this 'neutropenic sepsis‘.

Early recognition of the signs of sepsis and fast treatment ensures patient safety.

- Neutropenia: An absolute neutrophil count (ANC) of <1.0 x 10^9/L regardless of the overall white cell count
- Severe Neutropenia: ANC of <0.5 x10^9/L
- Neutropenia can be life-threatening in cancer patients
- Problems arise when neutropenic patients display signs of infection
- Immediate assessment is needed
- Neutropenic sepsis is a medical emergency

Recognising Sepsis

What patients are asked to report following SACT

- Temperature of 37.5ºC or above
  - Temperature can be masked in patients on steroids, those taking anti-pyretic i.e. paracetamol or in immunocompromised patients
- Feeling unwell and / or temperature below 36ºC
- Redness or swelling (especially around lines or drains)
- Shivery / hot and cold sweats
- Burning feeling passing urine
- Cough, sputum
- Feeling breathless / rapid breathing
- Confusion / disorientation
- Sore throat or mouth
- Diarrhoea

Recognising Sepsis – Risk Factors

1 of these symptoms

High

- ❑ New altered mental state
- ❑ Heart rate > 130/min
- ❑ Systolic BP ≤ 90 mmHg
- ❑ Respiratory Rate ≥ 25/min or oxygen ≥ 40% to maintain SaO^2 ≥ 92%
- ❑ Not passed urine in previous 18 hours (this should be reported well in advance, do not wait this long for review), or for catheterised patients passed less than 0.5 ml/kg of urine per hour.
- ❑ Mottled, ashen or cyanosed appearance.
- ❑ Non-blanching rash of skin.
- ❑ **Risk of impaired immunity e.g.** SACT in the last 6weeks (chemotherapy, Immunotherapy, biological therapies, radiotherapy, trials) OR Transplant (Allograft <2yrs/ Autologous <6months) With a reported temperature ≥38'c

2 of these symptoms

Moderate

- ❑ History of altered behaviour, acute deterioration in functional ability
- ❑ Recent trauma/surgery/invasive procedure within the last 6 weeks
- ❑ Heart Rate 91/min – 130/min
- ❑ Systolic BP 91 mmHg – 100 mmHg
- ❑ New onset arrhythmia
- ❑ Temperature < 36°c
- ❑ Not passed urine in the past 12–18 hours, or for catheterised patients passed 0.5–1 ml/kg of urine per hour
- ❑ Respiratory Rate 20 – 24 breaths per minute OR oxygen >40% to maintain SaO_2 >92%
- ❑ Signs of infection (swelling, discharge, wound breakdown)

Low

- ❑ Not triggering on observations
- ❑ Patient looks clinically well

This link explains how radiotherapy can also cause immunosuppression although this is less common: https://www.cancer.org/treatment/treatments-and-side-effects/physical-side-effects/low-blood-counts/infections/why-people-with-cancer-are-at-risk.html

Recognising Sepsis

If the Patient is triggering a NEWS2 **≥ 5. OR 3 (in a SINGLE PARAMETER)** ***AND / OR*** **LOOKS CLINICALLY UNWELL** with signs/ symptoms of infection and has 1 high risk factor/criteria OR 2 moderate risk factors. Then they are identified as being septic:

- At this point, the patient should be treated immediately by:
  - Completing the Sepsis Six Care Bundle
  - Getting an urgent doctor review
  - Completing the infection care plan

- A patient in **Septic Shock** is identified when <u>both</u>:
  - Lactate >2 mmol/L
  - Systolic BP remains <90mmHg after 30mg/kg of IV fluid resuscitation

Sepsis Online Tool

Treat suspected neutropenic sepsis as an acute medical emergency and offer empiric antibiotic therapy immediately - https://www.nice.org.uk/guidance/cg151

SEPSIS SCREENING TOOL ACUTE ASSESSMENT — AGE 12+

PATIENT DETAILS:

DATE: **TIME:**
NAME:
DESIGNATION:
SIGNATURE:

01 START THIS CHART IF THE PATIENT LOOKS UNWELL OR NEWS2 IS 5 OR ABOVE

RISK FACTORS FOR SEPSIS INCLUDE:

- ☐ Age > 75
- ☐ Impaired immunity (e.g. diabetes, steroids, chemotherapy)
- ☐ Recent trauma / surgery / invasive procedure
- ☐ Indwelling lines / IVDU / broken skin

02 COULD THIS BE DUE TO AN INFECTION?

YES

LIKELY SOURCE:

- ☐ Respiratory
- ☐ Brain
- ☐ Urine
- ☐ Surgical
- ☐ Skin / joint / wound
- ☐ Other
- ☐ Indwelling device

NO → SEPSIS UNLIKELY, CONSIDER OTHER DIAGNOSIS

03 ANY RED FLAG PRESENT?

YES

- ☐ Objective evidence of new or altered mental state
- ☐ Systolic BP ≤ 90 mmHg (or drop of >40 from normal)
- ☐ Heart rate ≥ 130 per minute
- ☐ Respiratory rate ≥ 25 per minute
- ☐ Needs O_2 to keep SpO_2 ≥ 92% (88% in COPD)
- ☐ Non-blanching rash / mottled / ashen / cyanotic
- ☐ Lactate ≥ 2 mmol/l
- ☐ Recent chemotherapy
- ☐ Not passed urine in 18 hours (<0.5ml/kg/hr if catheterised)

YES → **RED FLAG SEPSIS**

START **SEPSIS SIX**

04 ANY AMBER FLAG PRESENT?

NO

- ☐ Relatives concerned about mental status
- ☐ Acute deterioration in functional ability
- ☐ Immunosuppressed
- ☐ Trauma / surgery / procedure in last 8 weeks
- ☐ Respiratory rate 21-24
- ☐ Systolic BP 91-100 mmHg
- ☐ Heart rate 91-130 or new dysrhythmia
- ☐ Temperature <36°C
- ☐ Clinical signs of wound infection

YES → **FURTHER REVIEW REQUIRED:**

- SEND BLOODS AND REVIEW RESULTS
- ENSURE SENIOR CLINICAL REVIEW within 1HR

TIME OF REVIEW: ☐☐:☐☐

ANTIBIOTICS REQUIRED:

☐ Yes ☐ No

NO AMBER FLAGS = ROUTINE CARE / CONSIDER OTHER DIAGNOSIS

COMPLETE ALL ACTIONS WITHIN ONE HOUR

01 ENSURE SENIOR CLINICIAN ATTENDS

TIME ☐☐:☐☐

NOT ALL PATIENTS WITH RED FLAGS WILL NEED THE 'SEPSIS 6' URGENTLY. A SENIOR DECISION MAKER MAY SEEK ALTERNATIVE DIAGNOSES/ DE-ESCALATE CARE. RECORD DECISIONS BELOW

NAME: GRADE:

02 OXYGEN IF REQUIRED

TIME ☐☐:☐☐

START IF O_2 SATURATIONS LESS THAN 92% - AIM FOR O_2 SATURATIONS OF 94-98%
IF AT RISK OF HYPERCARBIA AIM FOR SATURATIONS OF 88-92%

03 OBTAIN IV ACCESS, TAKE BLOODS

TIME ☐☐:☐☐

BLOOD CULTURES, BLOOD GLUCOSE, LACTATE, FBC, U&Es, CRP AND CLOTTING
LUMBAR PUNCTURE IF INDICATED

04 GIVE IV ANTIBIOTICS

TIME ☐☐:☐☐

MAXIMUM DOSE BROAD SPECTRUM THERAPY
CONSIDER: LOCAL POLICY / ALLERGY STATUS / ANTIVIRALS

05 GIVE IV FLUIDS

TIME ☐☐:☐☐

GIVE FLUID BOLUS OF 20 ml/kg if age <16, 500ml if 16+
NICE RECOMMENDS USING LACTATE TO GUIDE FURTHER FLUID THERAPY

06 MONITOR

TIME ☐☐:☐☐

USE NEWS2. MEASURE URINARY OUTPUT: THIS MAY REQUIRE A URINARY CATHETER REPEAT LACTATE AT LEAST ONCE PER HOUR IF INITIAL LACTATE ELEVATED OR IF CLINICAL CONDITION CHANGES

RED FLAGS AFTER ONE HOUR – ESCALATE TO CONSULTANT NOW

RECORD ADDITIONAL NOTES HERE:

e.g. allergy status, arrival of specialist teams, de-escalation of care, d from Sepsis Six

https://sepsistrust.org/wp-content/uploads/2020/08/Sepsis-Acute-12-1.3.pdf

THE UK SEPSIS TRUST

Sepsis - Sepsis Six Care Bundle**

Three In:

1. Treat suspected neutropenic sepsis as an acute medical emergency and offer empiric antibiotic therapy immediately. https://www.nice.org.uk/guidance/cg151
2. Intravenous Fluid Resuscitation
3. Administer high-flow oxygen

3 IN : 3 OUT

Three Out:

1. Take blood cultures from each individual lumen and peripherally
2. Check FBC and lactate levels (if levels above 2, to be repeated 2 hours later)
3. Hourly urine output measurement (Commence strict Fluid Balance Chart)

- IV antibiotics may be given before a full history is taken or FBC result is known (Ensure time of first dose of antibiotics is accurately recorded)
- Investigations dependent on the clinical presentation but should include FBC, Biochem, micro samples (where relevant) +/- CXR dependent on symptoms

****Please note:** Not all staff completing this learning are expected to carry out the Sepsis 6, but they must escalate concerns to the clinical team.

https://www.nice.org.uk/guidance/ng51/resources/algorithm-for-managing-suspected-sepsis-in-adults-and-young-people-aged-18-years-and-over-in-an-acute-hospital-setting-pdf-2551485715

Sepsis summary

- ✓ Follow NEWS Policy to ensure appropriate observation frequency.
- ✓ Medical review within 60 minutes with Acute Oncology / Outreach support recommended.
- ✓ Always be suspicious for potential sepsis especially in patients:
  - ❑ Who have had SACT in the last 6 weeks
    - ✓ Should be suspected in any patients presenting as an emergency within 28 days of systemic anti-cancer therapy
    - ✓ Cancer patients are at higher risk of infection (dependent of extent of disease and treatment)
    - ✓ Reversible myelosuppression is common side effect of many chemotherapies
    - ✓ Neutropenic sepsis is a cause for significant cancer treatment related mortality
    - ✓ Malignant haematology patients are also high risk
  - ❑ with a known low neutrophil count (< 1.0)
    - ✓ Risk of infection increases with reducing neutrophil count
- ✓ Paracetamol / NSAIDs can mask a fever but DO NOT affect blood cultures
- ✓ Aggressive use of in-patient antibiotics have significantly reduced morbidity/mortality and ICU admissions
- ✓ Classical signs and symptoms of infection may be absent. Early symptoms may be vague and there is often no clear focus of infection
  - ❑ History of fever
  - ❑ Feeling generally unwell
  - ❑ Symptoms of potential infection e.g. mucositis, sore throat, diarrhoea, signs of central line infection

Antibiotics – PLEASE NOTE THESE CAN DIFFER DEPENDING ON YOUR TRUST POLICIES.

MEROPENEM 1g STAT dose in ED/Urgent care

1st Line: TAZOCIN 4.5mg QDS plus **Gentamicin** 5mg/kg OD +/- targeted antimicrobials

2nd Line: MEROPENEM 1g TDS alternative if patient:

- ✓ has received a renal-toxic systemic anticancer treatment (SACT) within the last 7 days (i.e, cisplatin, carboplatin, oxaliplatin, ifosfamide, high dose methotrexate $\geq 3g/m2$, trabectedin)
- ✓ Is penicillin allergic (NB,10% cross over with meropenem)
- ✓ Has risk of renal impairment (eGFR <30ml/min)

MEROPENEM 1g TDS plus **Vancomycin** if:

- ✓ Evidence of line infection (e.g. cellulitis at exit site).

NB: IT IS NOT NECESSARY TO WAIT FOR UREA & ELECTROLYTES (U&ES) BEFORE ADMINISTERING ANTIBIOTICS TO PATIENTS WITH SUSPECTED SEPSIS

Once Full Blood Count (FBC) result known

Neutropenic – neuts <1.0

- ❑ Admit for continuing IV Antibiotics
- ❑ Close monitoring vital signs + fluid balance
- ❑ Regular senior review
- ❑ Daily bloods
- ❑ If pt on prophylactic GCSF continue the course
- ❑ Inform AOT or Haematology team as appropriate

Not neutropenic – neuts >1.0

- ❑ If unwell, admit and treat as clinically indicated
- ❑ If well consider discharge home with course of oral Antibiotics (as per local trust guidelines) if presented with fever
- ❑ Check if patient is on prophylactic GCSF as this may elevated neuts/WCC
- ❑ Safety netting advice – check patient has 24 hr contact number and knows to ring/return if symptoms reoccur

Antibiotics Oral Stepdown - PLEASE NOTE THESE CAN DIFFER DEPENDING ON YOUR TRUST POLICIES.

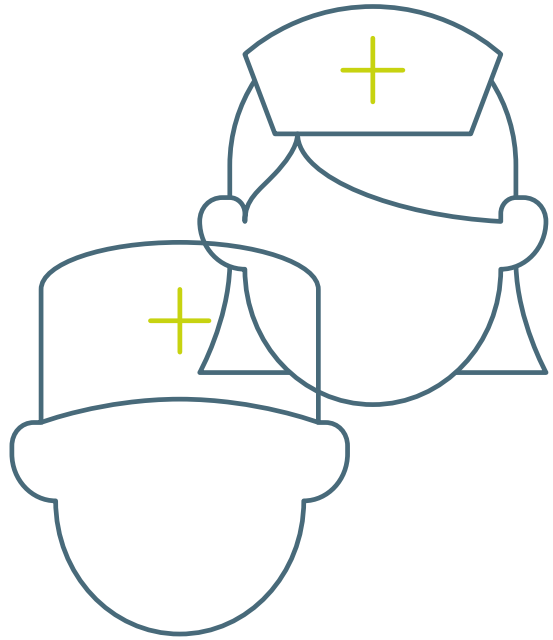
- ✓ Afebrile with neutrophil count >1.0x10^9/L for 48 hours
- ✓ Should be in line with culture and sensitivity results and continued to complete a total of 7 days treatment (including IV treatment).
- ✓ If culture negative and no foci for infection found, step down to the following when clinically appropriate:

  - ❑ **Co-amoxiclav** 625mg PO TDS (+ Ciprofloxacin PO 750mg BD)
  - ❑ **Alternative/Pencillin allergic:**
  - ❑ **Levofloxacin** PO 500mg once daily

If patient is on any of the additional antibiotics listed above seek advice from microbiology on course length and oral stepdown.

Consider Filgrastim - Filgrastim (Granulocyte Colony Stimulating Factor) is used to stimulate the production of neutrophils in the bone marrow to help fight infection, and to reduce the duration of the period of neutropenia. It's use in neutropenic sepsis should be guided by the patient's oncology team or AOS.

Local Nursing Checklist



- ❑ Observations to be monitored as per NEWS2 guidance
- ❑ Side room management
- ❑ Strict Fluid Balance
- ❑ Daily Bloods
- ❑ ANTT - aseptic non touch technique
- ❑ Timely administration of Antibiotics via IVAD if present
- ❑ If spikes temp, repeat cultures.
- ❑ Ensure patient is referred to AO and/or Haematology
- ❑ Chase microbiology results

Consolidation: Quiz

1. What is the most common type of white blood cell?
a. Eosinophil
b. Neutrophil
c. Lymphocyte
d. Basophil
e. Monocyte

2. What is the name for a low neutrophil count
a. Neutrophilia
b. Neutrokalemia
c. Neutropenia
d. Neutrotoma
e. Neutrocyte

3. When are patients most at risk?
a. On the day of chemotherapy
b. 1-2 days after chemotherapy
c. 7-10 days after chemotherapy
d. 1 month
e. 6 months

4. Which are the following signs of sepsis
a. Low body temperature
b. High heart rate
c. Low blood pressure
d. High respiration rate
e. Low potassium

5. Which of the following would also be at risk of sepsis:
a. Mucositis
b. Diarrhoea
c. Cough with green sputum
d. Hypotensive features
e. Shivering

Case Study: 53 old Judith presented in A&E with a temperature of 38.1°C. Judith has a history of breast cancer and received a cycle of chemotherapy 7 days ago.

Observations were taken by the triage nurse:
Temperature: 38.9°C
Blood Pressure: 124/75
Heart Rate: 84
Respiratory Rate: 18
SPO_2 : 98%

6. What would you treat this as?
a. Arterial thrombosis
b. Neutropenic sepsis
c. Hypotension

7. What would you do next?
a. Cannulate the patient with the intention of administering abx
b. Contact the Acute Oncology Team
c. Take observations to see if there's any change

8. Blood tests are required. Full blood count, liver function test and C-reactive protein have been requested. What else is needed?
a. Urea and Electrolytes
b. Venous blood gas
c. Blood cultures
d. Blood glucose
e. Lactate

9. What should you ensure happens within one hour?
a. Contact the Acute Oncology Team
b. Patient is moved to a high dependency unit
c. IV antibiotics are administered

10. **What would you obtain in an infection screen?**
a. Urine sample
b. Stool sample
c. Sputum sample

11. Would you admit this patient?
a. Yes, depending on the blood results and clinical condition
b. No, this does not require further observation

12. **. If sepsis is suspected with the infection in the central line, what should you do?**
a. Give antibiotics down the line, if trained, or peripherally if not
b. Contact the Acute Oncology Team
c. Do not give antibiotics

Radiotherapy

MoU NURS60093 (Level 7) – Week 3 Learning

PATIENT INFORMATION LINK:

Validated 03 Mar 2021 – mark.reed4@nhs.net

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Radiotherapy skin reactions

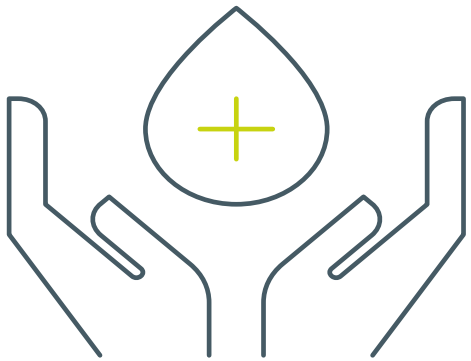
The level of reaction will depend on the **area being treated** and the **total dose delivered**

- ✓ **Occur only within the treated area**
- ✓ Can appear any time during radiotherapy treatment, usually around 10 days after starting treatment, but may also appear once treatment is completed i.e. in the weeks immediately post-treatment.
- ✓ Skin may:
  - ❑ become pink or darker (depends on skin tone)
  - ❑ feel dry or tight, sore or itchy
  - ❑ blister or peel (especially in skin folds)

Reduce friction to the treated area

- ✓ Wash skin gently with unperfumed / unscented soap and water, gently pat dry
- ✓ If the scalp is in the treatment field, wash hair gently with unperfumed / unscented shampoo but do not dry with a hairdryer
- ✓ Wear loose fitting natural fibre clothing next to skin
- ✓ Avoid an under wired bra if breast is being treated
- ✓ avoid rubbing the area
- ✓ Avoid heating and cooling pads / ice
- ✓ Avoid wet shaving and to use electric razor if patient continues to shave
- ✓ Avoid wax and all hair removing creams / products
- ✓ Avoid adhesive tape
- ✓ Please check your local radiotherapy skincare guidelines

Reduce irritation to the treated area



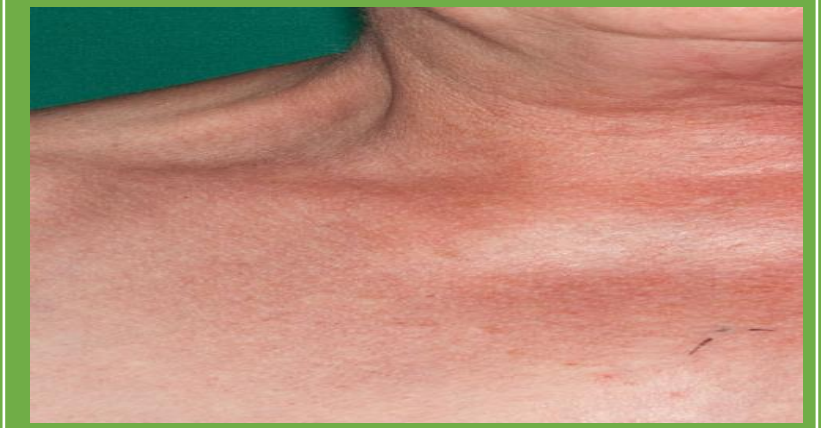
- ✓ use a moisturiser that is sodium lauryl sulphate free
- ✓ use moisturiser sparingly, don't over rub into the skin
- ✓ Do not wipe the area clean of the moisturiser prior to treatment as this will cause more friction to the skin
- ✓ avoid topical antibiotics unless there is proven infection
- ✓ continue to use normal deodorant (unless this irritates the skin); discontinue if the skin is broken

Grading and management

Radiation Therapy Oncology Group (RTOG) scale grades skin reactions from 0 to 4: the higher the grade, the worse the reaction.

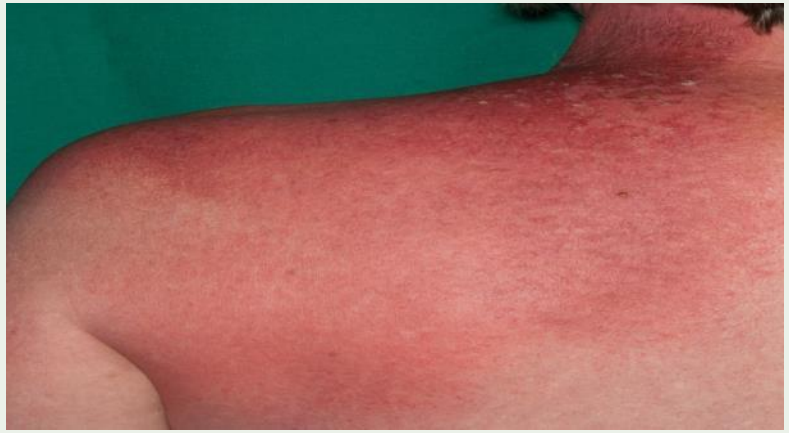
RTOG 0.0 - No visible change

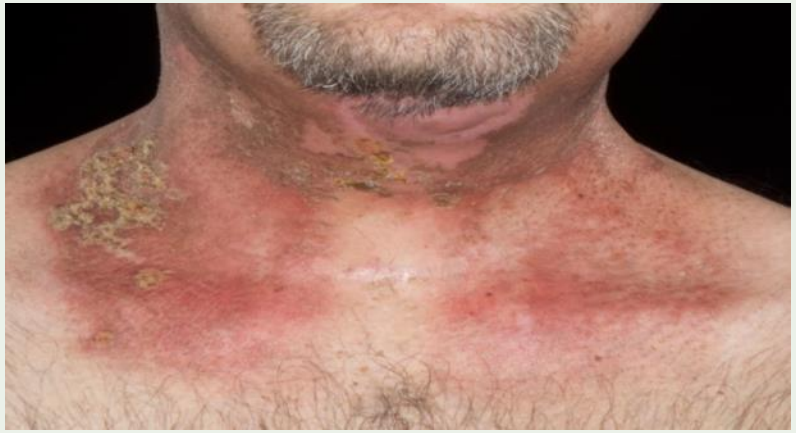
RTOG 1.0 - Faint or dull erythema



Advise patient to continue with own skin care moisturising regime.

RTOG 2.0 - Bright erythema / dry desquamation. Sore, itchy and tight skin



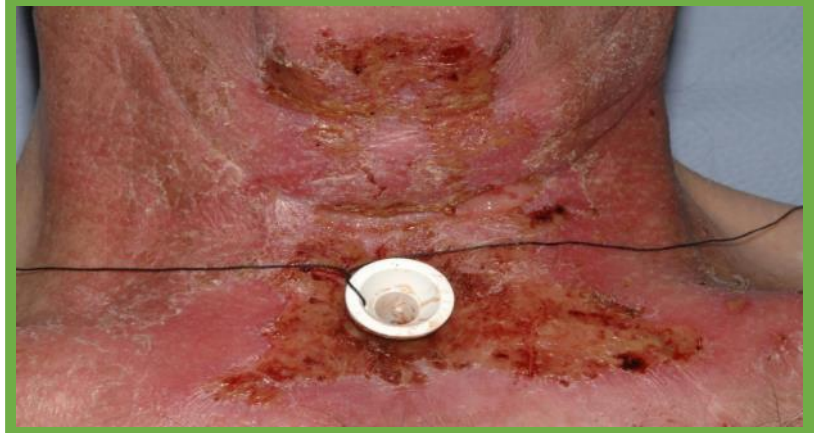


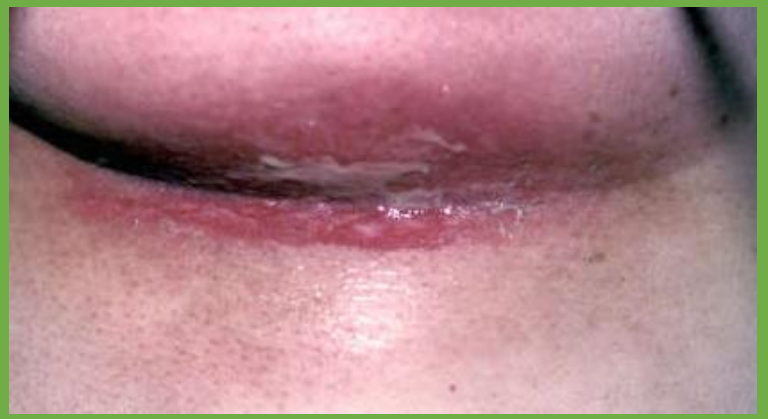
Advise patient to continue to moisturise. Consider prescription for 1% hydrocortisone cream for symptomatic relief. Consider need for analgesia.

Grading and management

Radiation Therapy Oncology Group (RTOG) scale grades skin reactions from 0 to 4: the higher the grade, the worse the reaction.

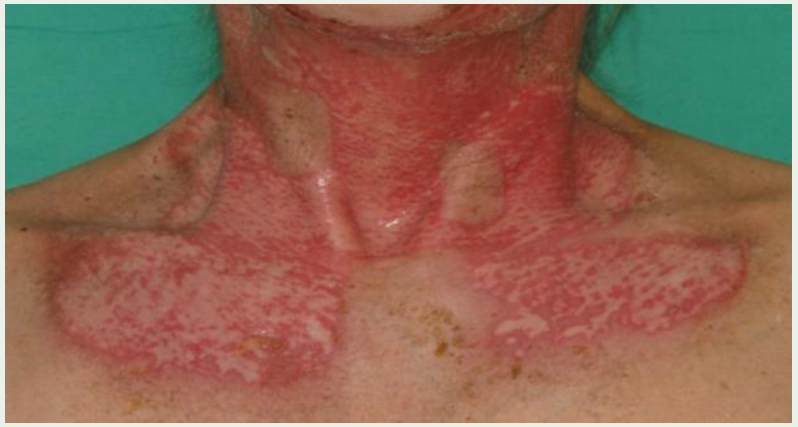
RTOG 2b - Patchy moist desquamation. Yellow / pale green exudate

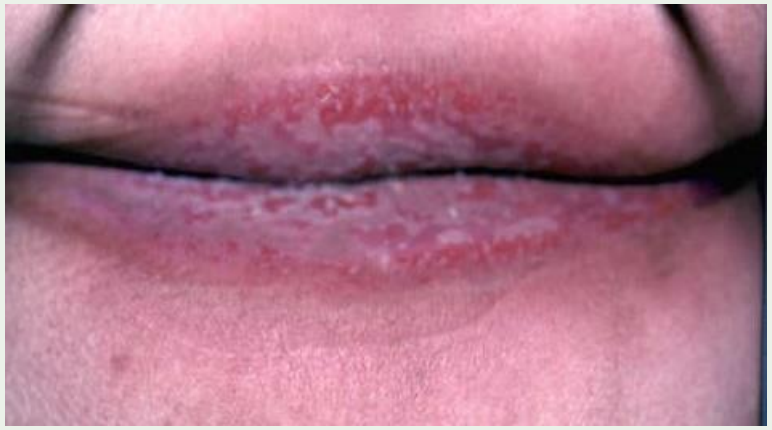




Advise patient to continue to moisturise unbroken skin. Stop 1% hydrocortisone use on broken skin. Apply appropriate dressing to exuding areas. Review analgesia. Need to swab if suspicion of skin infection.

RTOG 3.0 - Confluent moist desquamation. Yellow / pale green exudate

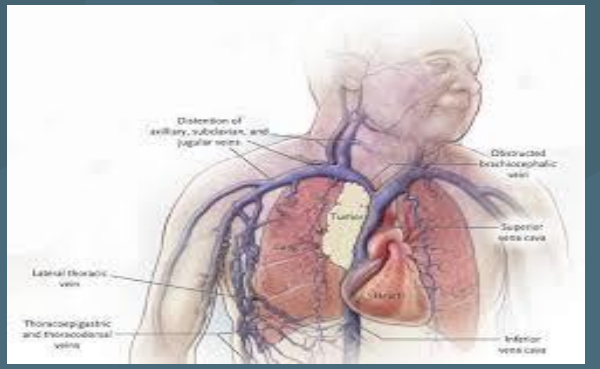




Stop moisturising moist / broken skin. Continue with RTOG 2b interventions

Superior Vena Cava Obstruction (SVCO)

MoU NURS60093 (Level 7) – Week 3 Learning



PATIENT INFORMATION LINK:

Validated 22 Feb 2021 – Dr Claire Mitchell - claire.mitchell34@nhs.net

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Superior vena cava obstruction (SVCO)

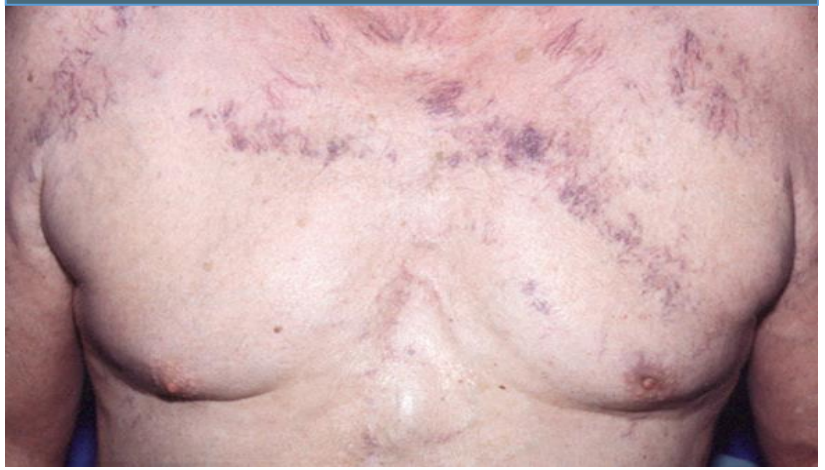
The superior vena cava is responsible for returning blood from the body directly to the heart, it lies in the centre of the chest behind the sternum.

Obstruction occurs when something blocks the blood from flowing along it, this may be a clot, or a tumour that is either invading or externally compressing it.

Signs & symptoms

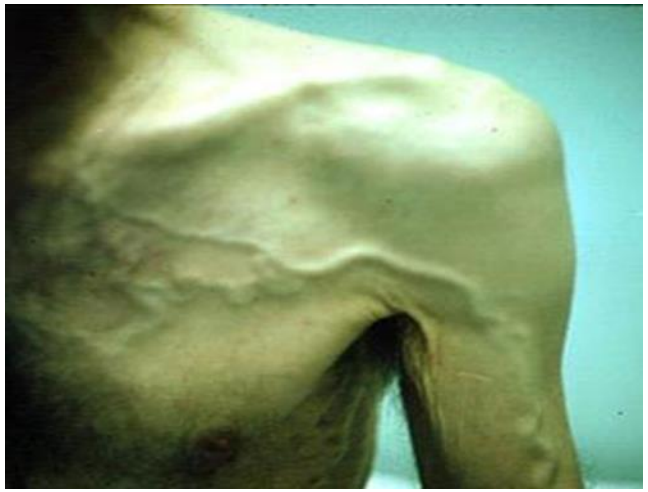
- ❑ Breathlessness (due to oedema around the trachea)
- ❑ Stridor due to laryngeal oedema
- ❑ Facial swelling and dark red / flushed complexion
- ❑ Swelling of the neck, arms and hands
- ❑ Visible swollen veins on the chest wall
- ❑ Dizziness / visual disturbance
- ❑ The patient may feel worse lying flat / leaning forward

Treatment will depend on the cause of the obstruction



SVCO - Mediastinal mass compressing SVCO venous return from the head and neck and upper limbs

Superior vena cave obstruction (SVCO) is nearly always associated with malignancy, usually lung cancer (80% of cases) but sometimes lymphoma, breast cancer or germ cell tumours.



Investigation:

- ❑ History – previous cancer history / treatment / is a Implanted Venous Access Device (IVAD) present (?thrombus)
- ❑ Vital signs, including oxygen saturations
- ❑ CXR
- ❑ Bloods: Full Blood Count (FBC), urea and electrolytes (U&E), Liver Function Tests (LFT), Clotting (in case interventional procedure required)
- ❑ Urgent CT thorax scan
- ❑ If a new diagnosis of malignancy – tumour markers e.g. Human Chorionic Gonadotropin (HCG), Alpha-Fetoprotein (AFP), Lactate dehydrogenase (LDH) may be appropriate +/- biopsy.
- ❑ Discuss with acute oncology.

Management

Management will depend on the underlying diagnosis, previous cancer history and prior treatments that the patient may have potentially have had.

Symptomatic relief

Elevate head, analgesia. administer oxygen or Heliox (helium/oxygen mix for patients with marked stridor as this is easier to breathe), avoid iv fluids via upper limbs.

Steroids

Dexamethasone 8mg bd + PPI – if this a new cancer diagnosis hold off steroids until discussed with AO team

Stent insertion

Discuss with vascular radiologist

Chemotherapy

If chemo-sensitive tumour i.e. lymphoma / small cell lung cancer/ germ cell tumour

Radiotherapy

If radiosensitive tumour

May be required post stent insertion

Anticoagulants & antiplatelets

If thrombus present or post stent insertion

Metastatic Spinal Cord Compression (MSCC)

MoU NURS60093 (Level 7) – Week 3 Learning

PATIENT INFORMATION LINK: https://www.macmillan.org.uk/cancer-information-and-support/impacts-of-cancer/malignant-spinal-cord-compression

Validated 23 November 2020 – Lena Richards - lena.richards@nhs.net

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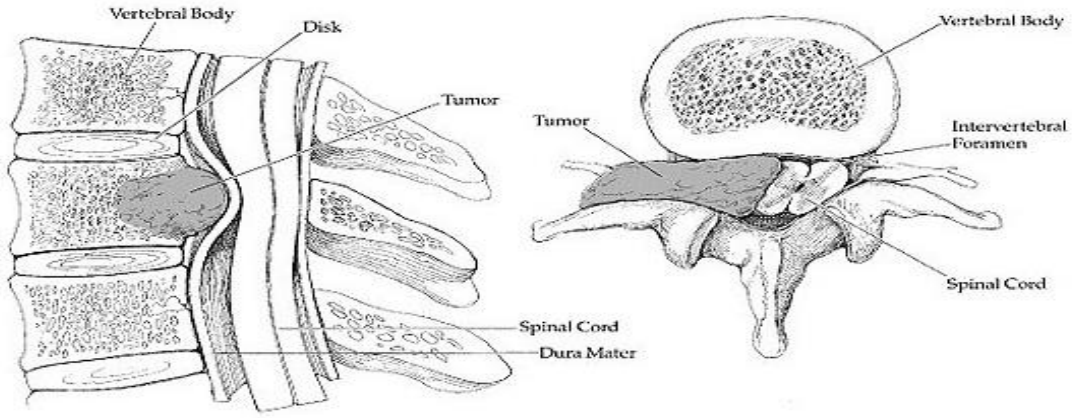
Metastatic Spinal Cord Compression (MSCC)

…*"Spinal cord or cauda equina compression by direct pressure and/or induction of vertebral collapse or instability by metastatic spread or direct extension of malignancy that threatens or causes neurological disability.* NICE 2008

Early diagnosis and treatment is essential to prevent neurological damage, improve outcome and quality of life



MSCC

eLearning - http://nwyhelearning.nhs.uk/elearning/northwest/christie/web_embeds/mscc/story.html

MSCC occurs when bone / soft tissue metastases expand into spinal canal → impairs blood flow → ischaemia.

- MSCC is estimated to occur in 5 to 10% of all cancer patients
- Most common primary sites are Lung, Breast and Prostate (50%), but can occur in any cancer
- MSCC may be the first presenting symptom of cancer (23 - 25% of patients)
- Early recognition is vital and over 90% present with back pain
- Delay in treatment can result in paralysis and loss of function
- Diagnosis and treatment whilst patient is still walking is essential to prevent neurological damage and achieve best outcome.

MSCC Key Points

Incidence

- Approx 80 cases / million population per year *
- 1 in 5000 people with back pain
- Median age 70 years
- Approx 25% present with MSCC as first sign of cancer

Presentation

- Back pain in over 90% → progressive weakness
- Sensory disturbance, bladder and bowel dysfunction

Sites

- Thoracic 70%
- Lumbar 20%
- Cervical 10%

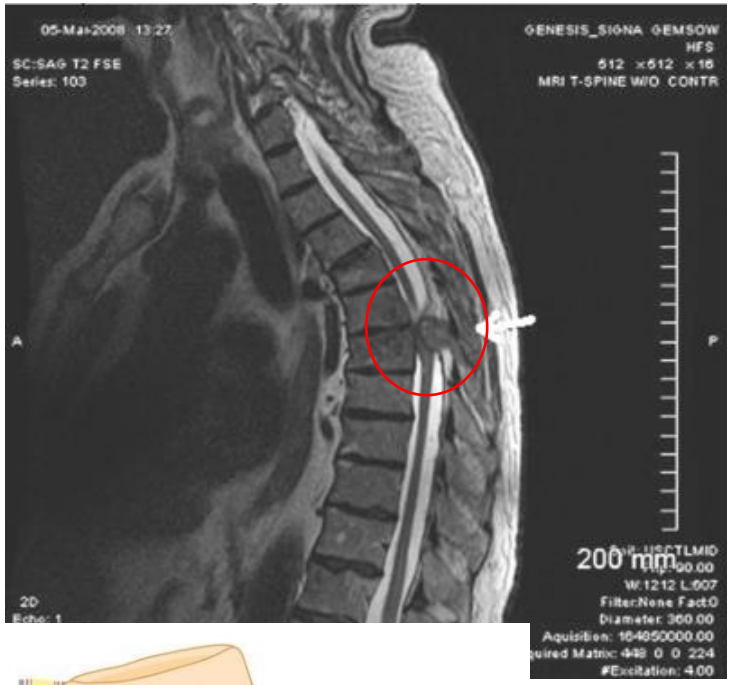
Prognosis

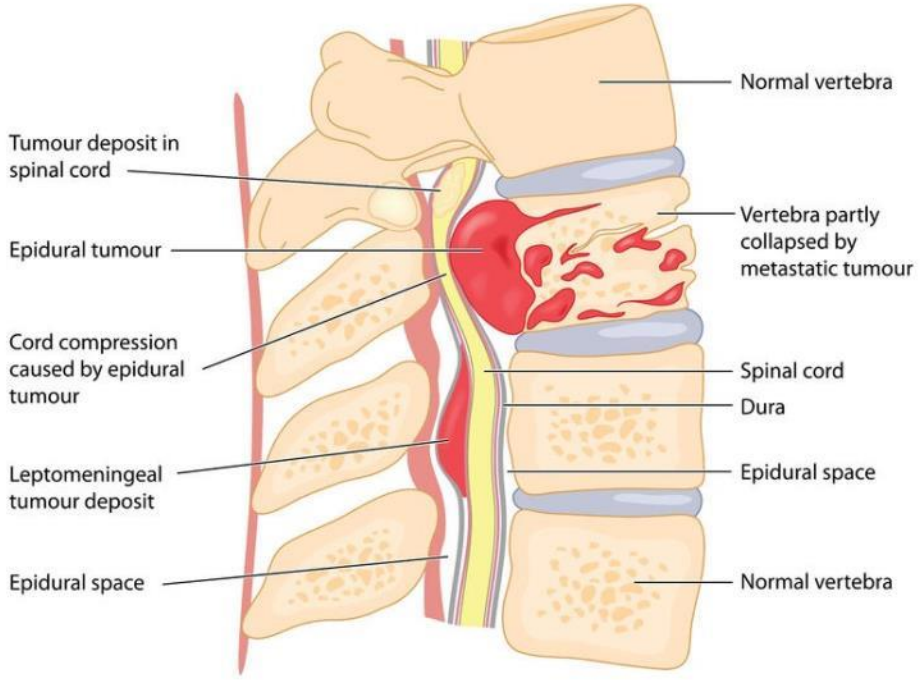
- Most patients die within 12 months (median survival 2.9 months). Best outcome if ambulant on presentation, good performance status and good prognosis (e.g. breast, prostate, thyroid, germ cell, lymphoma)

*** (CRAG 2001, Christie 2014 – 2016)**

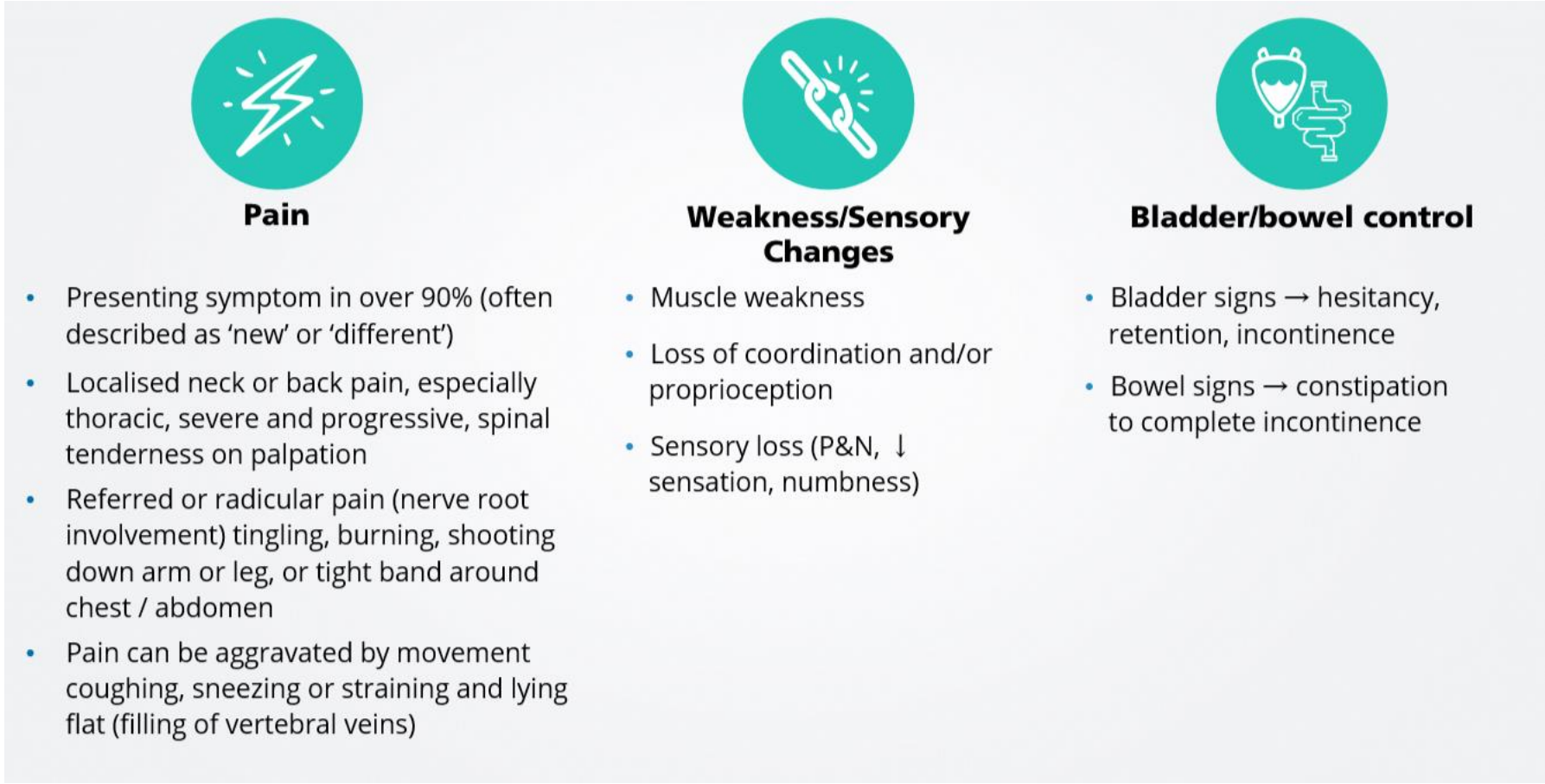
Causes of MSCC

- Most cases due to bone metastases (85%) +/- vertebral collapse
- 15% other types of masses e.g. paraspinal
- 30-50% have multi-level compression at diagnosis; which is why whole spine MRI is important





Warning Signs & Symptoms / Red Flags



Pain

- Presenting symptom in over 90% (often described as 'new' or 'different')
- Localised neck or back pain, especially thoracic, severe and progressive, spinal tenderness on palpation
- Referred or radicular pain (nerve root involvement) tingling, burning, shooting down arm or leg, or tight band around chest / abdomen
- Pain can be aggravated by movement coughing, sneezing or straining and lying flat (filling of vertebral veins)

Weakness/Sensory Changes

- Muscle weakness
- Loss of coordination and/or proprioception
- Sensory loss (P&N, ↓ sensation, numbness)

Bladder/bowel control

- Bladder signs → hesitancy, retention, incontinence
- Bowel signs → constipation to complete incontinence

symptoms of spinal cord compression can start many months before symptoms of paraesthesia / paralysis present.

Recognising MSCC –
What patients may report

Referred or BAND LIKE pain
Escalating Pain: Poor response to treatment
Different character or site than previous

Funny or ’odd sensations’ or ‘heavy legs’
Lying flat increases pain
Agonising or severe back pain
Gait disturbance: Unsteady, stairs difficult
Sleep disturbance with night pain

EARLY WARNING SIGNS OF MSCC
Greenhalgh S, Turnpenney J, Richards L, Selfe J (2010)

RED FLAGS	
R	Referred back pain is multi-segmental or band-like
E	Escalating pain which is poorly responsive to treatment (incl medication)
D	Different character or site to previous symptoms
F	Funny feelings, odd sensations or heavy legs (multi-segmental)
L	Lying flat increases back pain
A	Agonising pain causing anguish and despair
G	Gait disturbance, unsteadiness, especially on stairs (not just a limp)
S	Sleep grossly disturbed due to pain being worse at night

NB – Established motor / sensory / bladder / bowel disturbances → late signs

METASTATIC SPINAL CORD COMPRESSION (MSCC)
KEY RED FLAGS

Past medical history of cancer
(but note 25% of patients do not have a diagnosed primary)

Early diagnosis is essential
as the prognosis is severely impaired once paralysis occurs

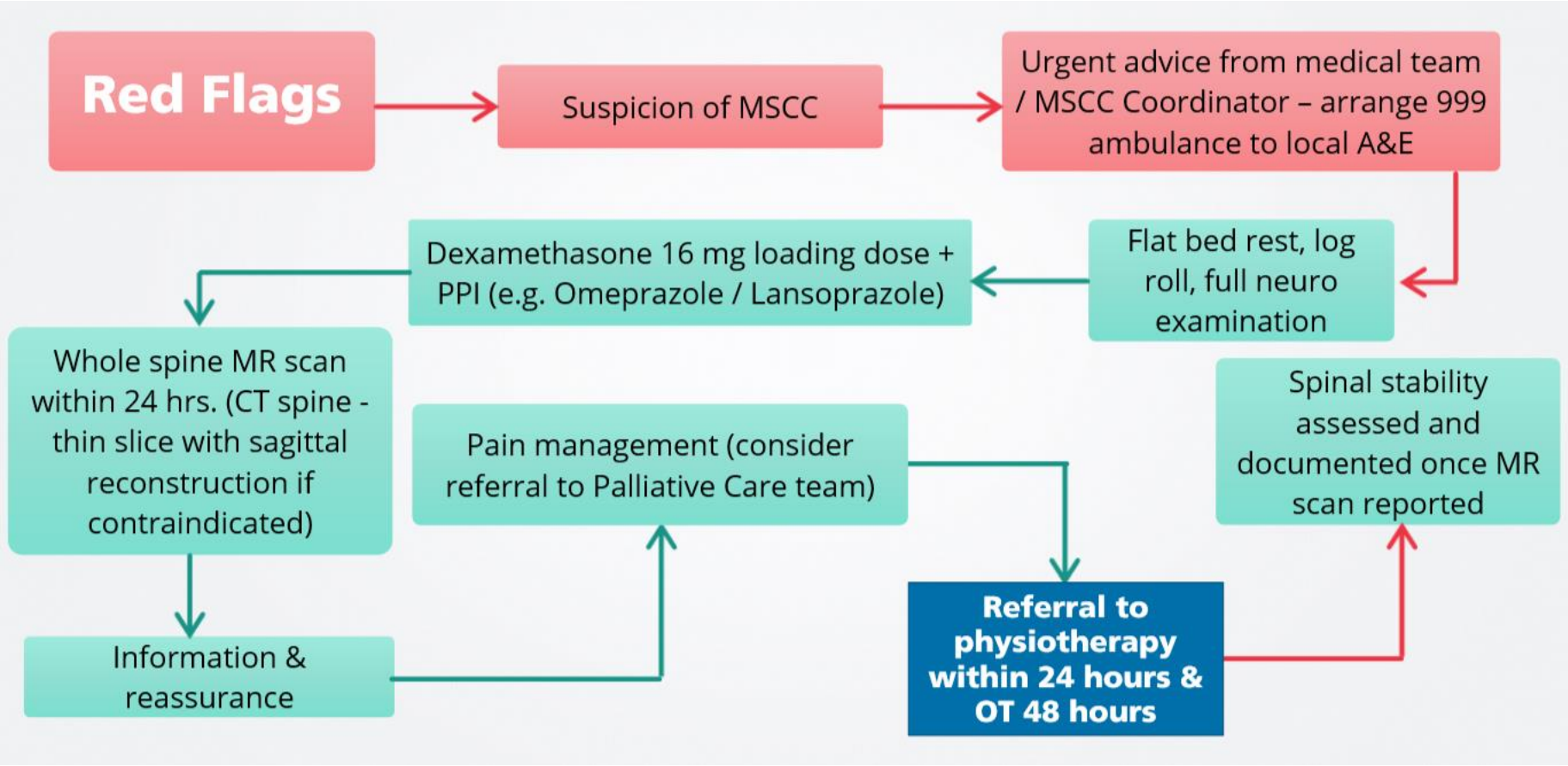
A combination of Red Flags increases suspicion
(the more red flags the higher the risk and the greater the urgency)

To access the Greater Manchester and Cheshire MSCC guidelines go to:
www.christie.nhs.uk (search 'spinal cord compression')

LATE SIGNS

- Established power loss / Sensory disturbance / Bladder or Bowel disturbance are LATE SIGNS and lead to poor functional outcome and survival.
- 94% patients complain of back pain as their first symptom of MSCC

Immediate management of suspected MSCC



MSCC Definitive Treatment Summary

(MSCC service data 2014-2017)

Surgery & XRT post-op

16%

of all patients

Radiotherapy

64%

- Should be given within 24 hours of diagnosis (NICE, 2008)
- good pain relief in 87%
- prevents / improves neurological progression
- single vs fractionated in 5#s (SCORAD III 2017)

Chemotherapy

4%

(Chemo sensitive tumours only, e.g. lymphoma, myeloma, SC lung, germ cell)

Best supportive care

16%

(Symptomatic management in community)

Rehabilitation

Physiotherapy /OT

(most patients have some rehab potential)

MSCC Service Co-ordinator Service:

- Trusts and cancer alliances will have different models in place for their MSCC co-ordinator service. **Make sure you are familiar with your local service.**
- **Example:**

Greater Manchester, Eastern and Mid Cheshire (GM Cancer) (including The Christie) have access to the MSCC Co-ordinator service 24/7. The service:

- Acts as a point of contact, providing a smooth, coordinated pathway for both suspected and confirmed MSCC patients.
- Work throughout the patient MSCC pathway to support early diagnosis, treatment and rehabilitation in order to achieve the best outcome and quality of life for patients.
- Support education and training related to MSCC

GM and Cheshire Network MSCC Coordinator Service:

Network Clinical Lead – Dr Vivek Misra (vivek.misra@nhs.net)
MSCC Educator – Lena Richards (lena.richards@nhs.net)
MSCC Coordinators – Claire Shanahan (claire.shanahan1@nhs.net) & Claire Greenbaum (c.greenbaum@nhs.net)
MSCC email account – mscc.service@nhs.net

Consolidation: Quiz

http://www.nwyhelearning.nhs.uk/elearning/northwest/penninecute/WebVersions2013/OncologicalEmergencies/

1. Patients with which cancer are most at risk of metastatic spinal cord compression?
Select all correct responses
a. Breast cancer
b. Leukaemia
c. Lung cancer
d. Prostate cancer

2. **What medication should be prescribed?**
a. Fentanyl
b. Phencyclidine
c. Haloperidol
d. Dexamethasone
e. Aliskiren

3. What else should be prescribed?
a. Low Molecular Weight Heparin
b. Calcium channel blocker
c. Monoamine oxidase inhibitor
d. Benzodiazepine
e. H_1 antagonist

4. How would you move a patient with suspected MSCC?
a. Hoist
b. Transfer board
c. Stand aids
d. Transfer handling belt
e. Log roll

5. Within what time should the MRI/CT take place?
a. 1 hour
b. 12 hours
c. 24 hours
d. 48 hours
e. 72 hours

6. To whom else should you refer the patient?
a. Local AOS referral
b. MSCC Co-ordinator
c. Neurosurgery
d. Accident and Emergency
e. Occupational Therapy
f. Intensive Care

7. Who is involved in the decision of when a patient is safe to mobilise?
Select all that apply
a. Consultant
b. Staff nurse
c. Physiotherapist

8. If a thoracic, cervical or lumbar or a combination brace is indicated, to where would a referral be required?
a. Neurology
b. Surgery
c. Orthotics

9. Why is it important to refer patients to a Physiotherapist and Occupational Therapist?

Select all that apply
a. Improve quality of life
b. Maintain or increase functional independence
c. Prevent complications
d. To return the patient to their home, if possible

Mucositis

MoU NURS60093 (Level 7) – Week 4 Learning

PATIENT INFORMATION LINK:

Validated 05 Jan 2021– Dr Konstantinos Kamposioras. konstantinos.kamposioras@nhs.net

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Mucositis

Mucosal injury provides an opportunity for infection to flourish, placing the patient at risk of sepsis

- ✓ A disorder characterized by ulceration or inflammation of the mucous membrane of the organ involved.
- ✓ Mucositis can affect **any of the mucous membranes** (oral, laryngeal, pharyngeal, tracheal, intestinal, rectal, anal).
- ✓ Refer to Clinical Team (Local AO team can support)
- ✓ Review appropriate management based on severity of symptoms.

Grading of Mucositis

Grade	1	2	3	4	5
Oral	Asymptomatic /mild symptoms Intervention not indicated	Moderate pain or ulcer that does not interfere with oral intake Modified diet indicated	Severe pain; interfering with oral intake	Life-threatening consequences; urgent intervention indicated	Death
Pharyngeal	Endoscopic findings only; minimal symptoms with normal oral intake; mild pain but analgesics not indicated	Moderate pain, analgesics indicated; altered oral intake limiting instrumental ADL	Severe pain; unable to adequately aliment or hydrate orally; limiting self care ADL	Life-threatening consequences; urgent intervention indicated	Death
Small intestinal	Asymptomatic or mild symptoms; intervention not indicated	Symptomatic; medical intervention indicated; limiting instrumental ADL	Severe pain; interfering with oral intake; tube feeding, TPN or hospitalization indicated; limiting self care ADL	Life-threatening consequences; urgent intervention indicated	Death
Rectal	Asymptomatic or mild symptoms; intervention not indicated	Symptomatic; medical intervention indicated; limiting instrumental ADL	Severe symptoms; limiting self care ADL	Life-threatening consequences; urgent operative intervention indicated	Death
Laryngeal	Endoscopic findings only Mild discomfort with normal intake	Moderate pain, analgesics indicated; altered oral intake; limiting instrumental ADL	Severe pain; severely altered eating/swallowing; medical intervention indicated	Life-threatening airway compromise; urgent intervention indicated (e.g., tracheotomy or intubation)	Death
Tracheal	Endoscopic findings only; minimal haemoptysis, pain, or respiratory symptoms	Moderate symptoms; medical intervention indicated; limiting instrumental ADL	Severe pain; haemorrhage or respiratory symptoms; limiting self care ADL	Life-threatening consequences; urgent intervention indicated	Death

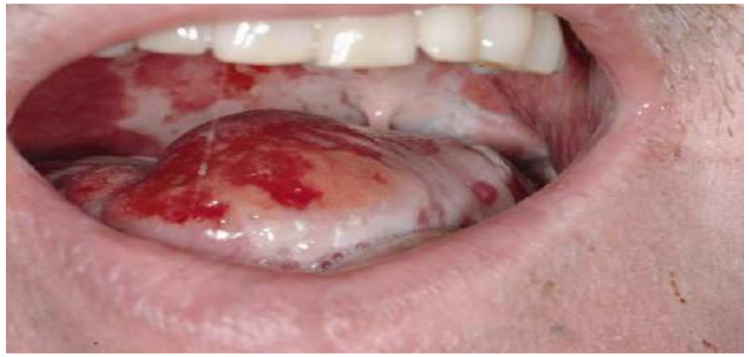
ADL: Activities of Daily Living

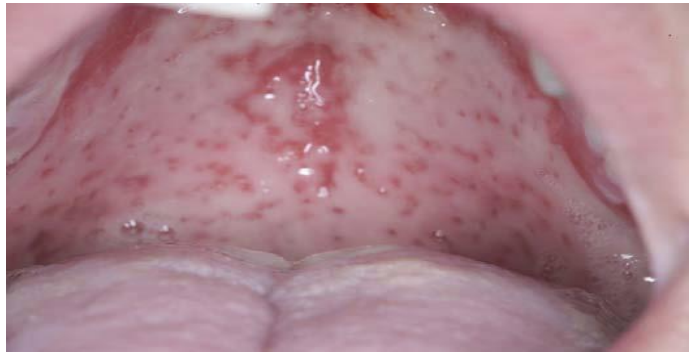
Oral Mucositis

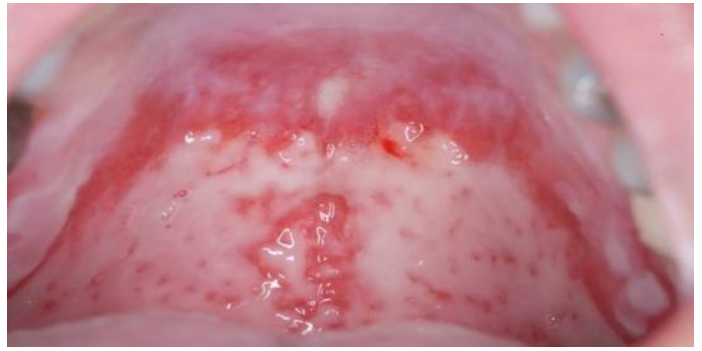
Mucosal injury provides an opportunity for infection to flourish, placing the patient at risk of sepsis

Grading of Mucositis Reactions					
Event	**1**	**2**	**3**	**4**	**5**
Mucositis	Erythema of the mucosa	Patchy ulcerations or pseudomembranes	Confluent ulcerations or pseudomembranes; bleeding with minor trauma	Tissue necrosis; significant spontaneous bleeding; life-threatening consequences	Death

Oral Mucositis is defined as inflammation of the mucosa membrane. It is characterised by ulceration, which may result in pain, dysphagia and impairment of the ability to talk.



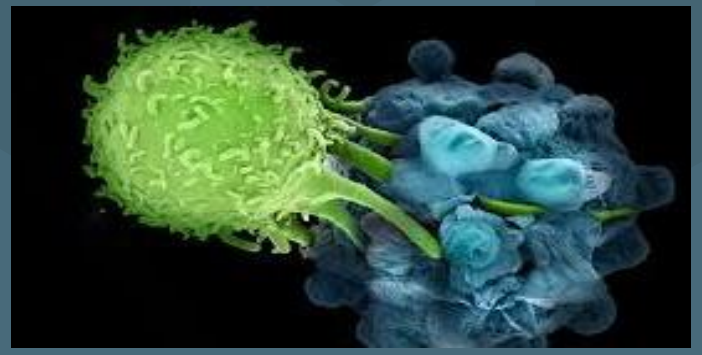




- ✓ Refer to Clinical Team (Local AO team can support)
- ✓ Encourage good oral hygiene:
  - ❑ QDS with saline or saline and sodium bicarbonate mouthwashes. Difflam mouthwash also indicated.
- ✓ Review fluid / nutritional / medication intake / Analgesic requirements.

Immunotherapy

MoU NURS60093 (Level 7) – Week 5 Learning



PATIENT INFORMATION LINK:

Validated 08/11/21– Dr Laura Cove-Smith. laura.cove-smith@nhs.net

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Different type of treatment - different toxicity profile and management

- Immunotherapy drugs are increasingly being used to treat cancers
- They have a unique set of side effects which, if not recognised and treated early, can be life threatening
- Immunotherapy toxicity presents differently and is managed differently to chemotherapy toxicity
- Virtually no haematological toxicity; signs can be subtle
- Auto immune related side effects, particularly endocrine, can occur many months after discontinuation of the treatment
- Steroids are the mainstay of toxicity management
- **Seek specialist advice early** – on the day of admission. Please refer to the treating cancer centre and inform local Acute Oncology Team
- Patients should come with an ALERT card – ask them!

Immune related adverse effects (IrAEs)

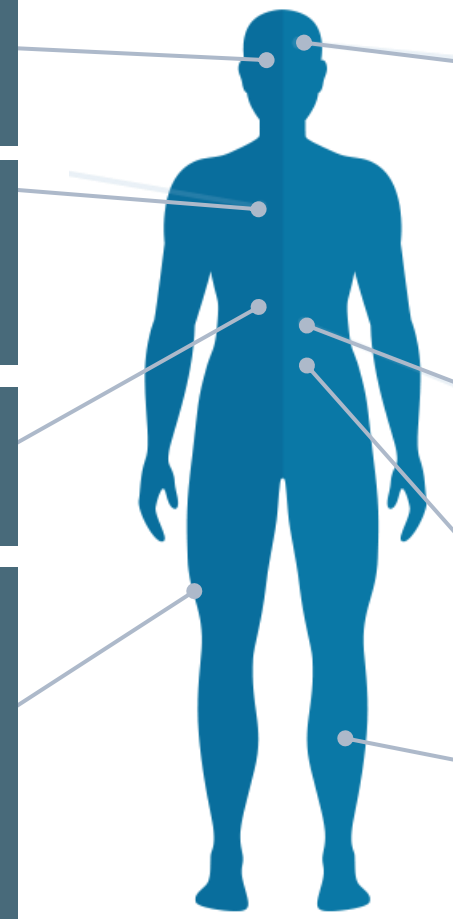
Immune-related side effects can affect any organ or tissue - most commonly the skin, colon, lungs, liver and endocrine organs. The most important and effective strategy for managing side effects is early identification and intervention:

EYES
- Uveitis
- Iritis

PULMONARY
- Pneumonitis - lung inflammation
- Interstitial lung disease
- Acute interstitial pneumonitis

HEPATIC
- Hepatitis - liver inflammation
- Autoimmune

SKIN
- Pruritus - rash, itching
- Vitiligo - loss of pigment
- Dermatitis exfoliative
- Erythema multiform
- Stevens-Johnson syndrome
- Toxic epidermal necrolysis
- Alopecia



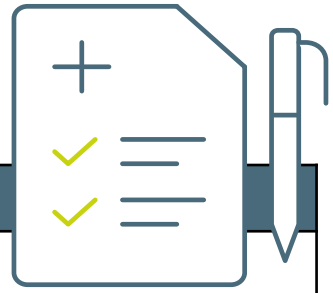
ENDOCRINE
- Hyperthyroidism - overactive
- Hypothyroidism - underactive
- Hypophysitis - Inflammation of pituitary gland
- Adrenal insufficiency

GASTROINTESTINAL TRACT
- Diarrhoea
- Colitis
- Enterocolitis
- Necrotizing colitis
- GI perforation

RENAL
- Nephritis, autoimmune
- Renal failure

NEUROLOGIC
- Autoimmune neuropathy
- Demyelinating polyneuropathy
- Guillain-Barre
- Myasthenia gravis-like syndrome

Symptom flags



Gastrointestinal Symptoms	Liver toxicity
Diarrhoea	Jaundice
PR blood loss	Dark urine
PR mucus	Nausea and vomiting
Worsening abdominal pain	Bleeding and bruising
	Increased ALT or Bilirubin
Pulmonary symptoms	**Renal toxicity**
Increasing SOB	Increase in creatinine
	Decreased urine output
Endocrine symptoms	**Skin reactions**
Persistent or unusual headaches	Skin rash +/- itching
Unusual sluggishness	Sores in mouth
Feeling cold all the time	Skin blisters or peels
Changes in mood or behaviour	**Neurological toxicity**
Irritability	Weakness of arms and legs
Dizziness or fainting	Numbness of tingling in hands and feet

Checkpoint inhibitors

- Ipilumimab
- Nivolumab
- Pembrolizumab
- Atezolizumab
- Durvalumab
- Avelumab
- Combination Ipilumumab/ Nivolumab

Checkpoint inhibitors work by releasing a natural brake on the immune system so that T cells can recognise and attack tumours. Most commonly used in treatment of melanoma, lung and urological cancers but use in other cancers is growing.

If immune related adverse effect suspected:

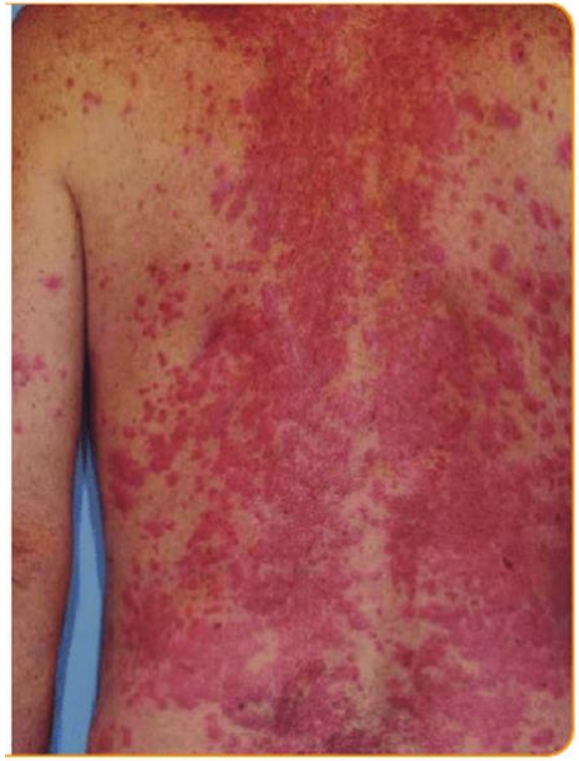
- ❑ Liaise early with treating Oncology team/AOT
- ❑ I-O recommended bloods – FBC, U&E, LFT, TFT, Cortisol, glucose
- ❑ Involve appropriate specialist teams e.g. respiratory, gasto', endocrinology
- ❑ Immunosuppression – steroids, mycophenolate, infliximab (need to check viral serology – HIV, hepatitis status before)
- ❑ Prophylactic antimicrobial meds - co-trimoxazole, aciclovir, fluconazole; used to lessen risk of opportunistic infection during steroids

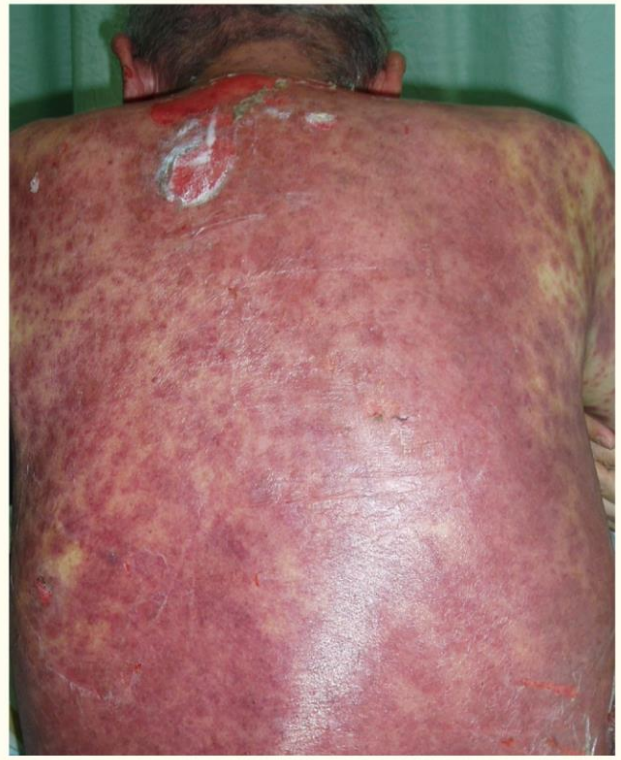
IrAE – Skin toxicity

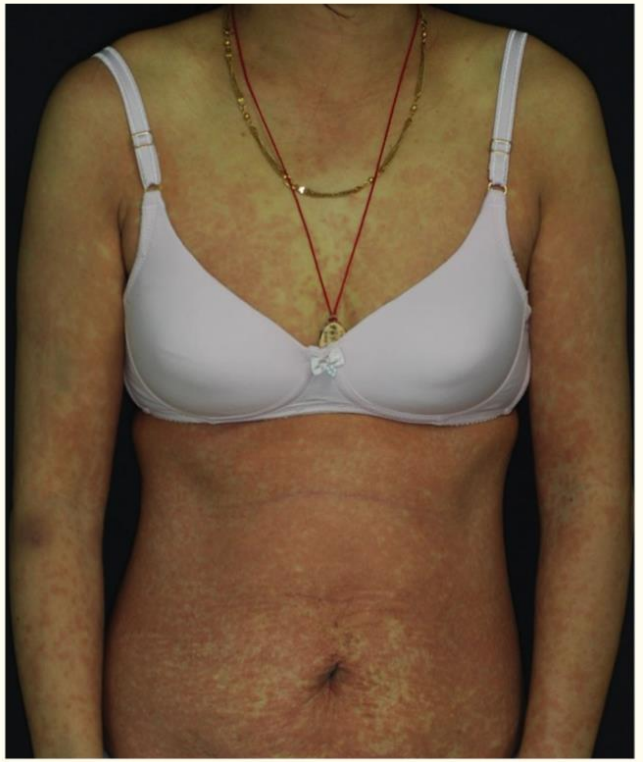
- Dermatological IrAEs are common and often mild in severity, but if left untreated can become life-threatening
- Severity of reaction needs to include careful physical examination, including mucosal areas, and grade as per CTCAE criteria
- Most can be managed effectively with careful monitoring, use of corticosteroids and where indicated other immunosuppressive agents. Dose reductions or treatment discontinuation not normally required
- Need to rule out other causes of skin problems, such as another drug or skin condition linked to system disease, and infection
- Urgent AOT input and consider referral to dermatology

IrAE – Skin toxicity

- Most common: Erythema, maculopapular and pustulopapular rash
- Rare: Toxic Epidermal Necrolysis (TEN), Steven-Johnson syndrome, Drug Rash with Eosinophilia and Systemic Symptoms (DRESS)







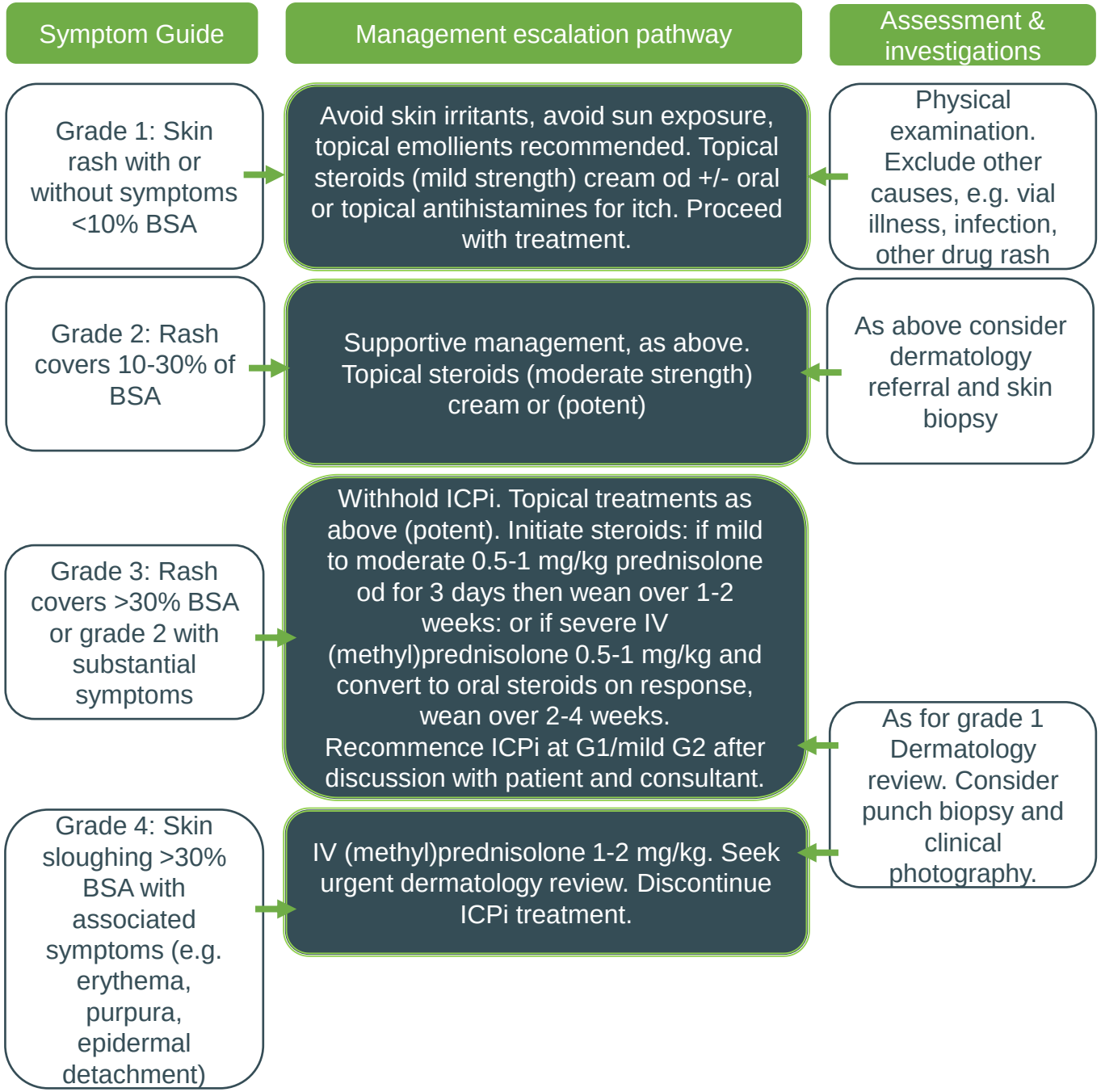
Skin toxicity

- ESMO guidelines

http://www.esmo.org/Guidelines/Supportive-and-Palliative-Care/Management-of-Toxicities-from-Immunotherapy

- UKONS guidelines

acute_oncology_initial_management_guidelines.pdf (ukons.org)

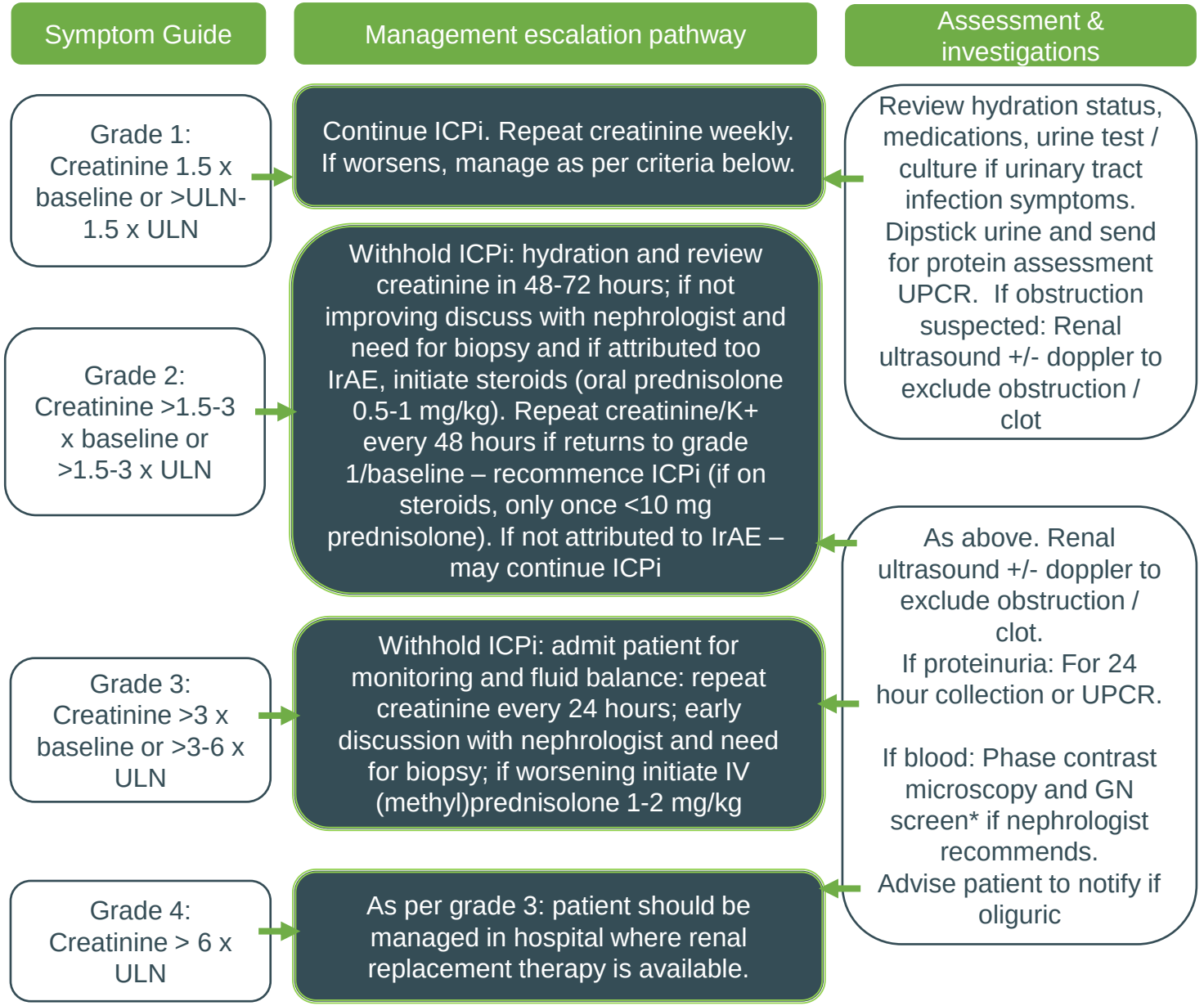


IrAE – Renal Toxicities

- Renal injury occurs in 1-4% of patients, and usually presents as an acute tubulo-interstitial nephritis or allergic nephritis
- Frequency of renal AEs may be higher with combination, rather than monotherapy
- Creatinine must be measured prior to each cycle of immunotherapy and compared to patient's baseline (not just abnormal results per ULN)
- Confounding factors such as dehydration, infection, renal tract obstruction, nephrotoxic medications, hypo/hypertension and recent IV contrast must be considered
- Most cases are grade 2 or 3 based on creatinine rise

Renal Toxicities

- Renal biopsy may be helpful in confirming/refuting deterioration due to immunotherapy prior to commencing steroids and discontinuing therapy
- In the event of severe renal dysfunction, advice of a nephrologist should be sough urgently
- Most patients renal function recovers partially or fully when managed with steroids

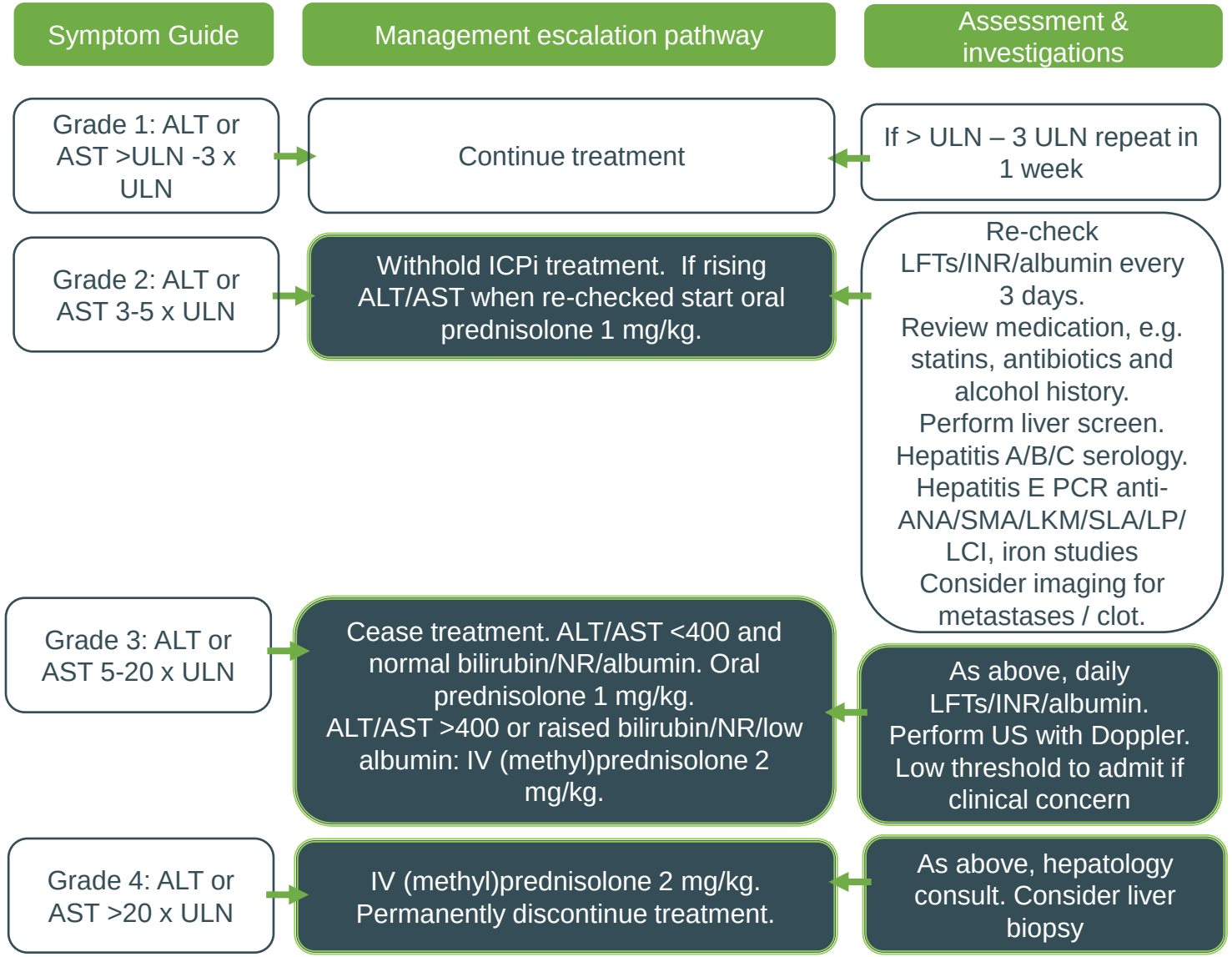


IrAE - Hepatoxicity

- Hepatitis occurs in 5-10% in patients treated with ipilimumab, nivolumab and pembrolizumab
- IrAE hepatoxicity more commonly presents with an asymptomatic rise in ALT/AST; less commonly with fever, fatigue and jaundice
- Hepatic transaminases (ALT/AST) and bilirubin must be evaluated before each dose of immunotherapy
- ALT/AST needs to be evaluated in the context of baseline LFTs, whether known liver metastases, concomitant medication, alcohol intake and infectious cause (particularly viral hepatitis)
- Imaging can rule out other causes such as cholelithiasis, metastases and vascular obstruction

Hepatoxicity

- Usually responds well to steroids, but time to resolution is 8 weeks and may occur as steroids are tapered
- Unclear whether N-acetylcysteine or ursodeoxycholic acid provide therapeutic benefit
- MMF and tacrolimus have also been used in steroid-refractory cases



Carcinoma of unknown primary (CUP)

MoU NURS60093 (Level 7) – Week 6 Learning

PATIENT INFORMATION LINK:

Validated 22 Feb 2021 – Dr Claire Mitchell - claire.mitchell34@nhs.net

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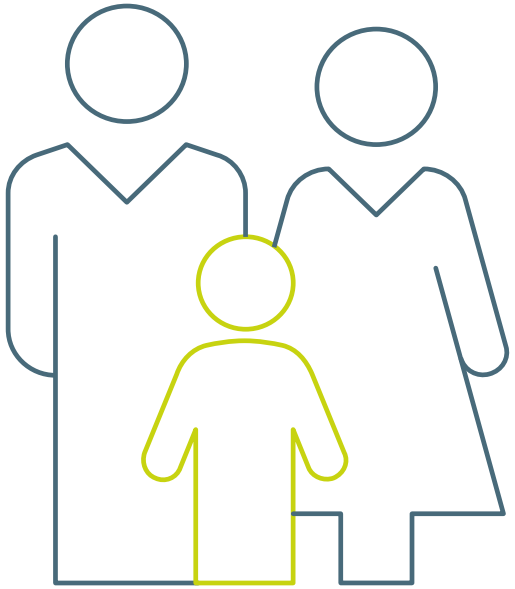
Carcinoma of unknown primary (CUP)



CUP is not a specific acute oncology emergency, but this group of patients often experience difficulties due to the uncertainty in their management.

The AO Team help to support these patients, and ensure they are managed appropriately, efficiently and effectively.

Definition

Malignancy of undefined primary origin (MUO):
Metastatic malignancy identified on the basis of a limited number of tests, without an obvious primary site, before comprehensive investigation.

Provisional carcinoma of unknown primary (pCUP):
Metastatic epithelial or neuroendocrine malignancy identified on the basis of histology/cytology, with no primary site detected despite a selected initial screen of investigations, before specialist review and possible further specialised investigations.

Confirmed carcinoma of unknown primary (cCUP):
Metastatic epithelial or neuroendocrine malignancy identified on the basis of final histology, with no primary site detected despite a selected initial screen of investigations, specialist review, and further specialised investigations as appropriate. No primary detected.

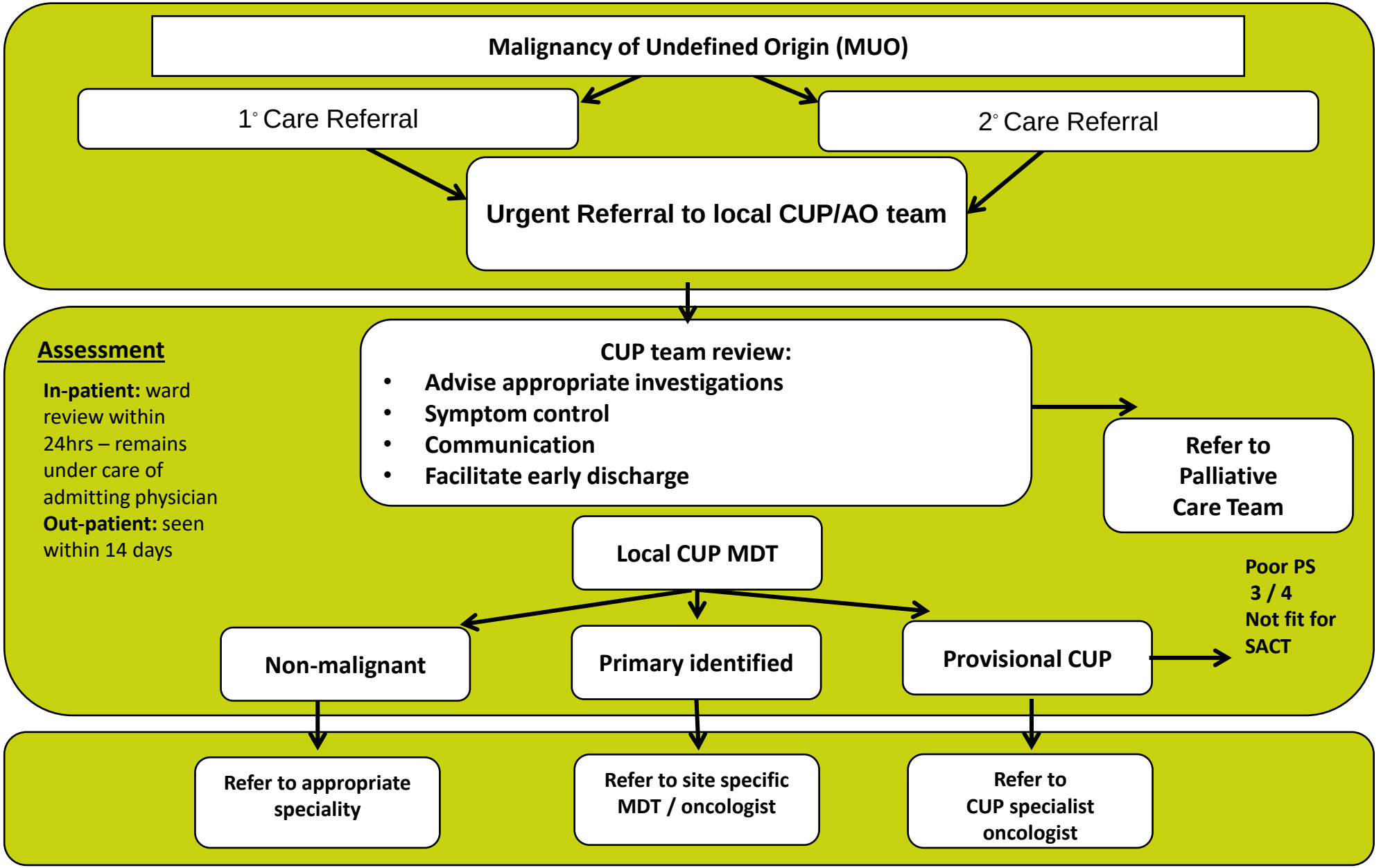
Background

- ✓ There were around 10,100 Cancer of Unknown Primary (CUP) deaths in the UK in 2014, that's 28 deaths every day.
- ✓ CUP accounts for 6% of all cancer deaths in the UK (2014).
- ✓ Epidemiological data are complex because of the lack of a discrete International Classification of Diseases (ICD) classification and variations in coding Hospital Episode Statistics (HES) data.
- ✓ Because of the lack of dedicated clinical services, patients who have malignancy without an identifiable primary site can be denied the care offered to patients with site-specific cancers.

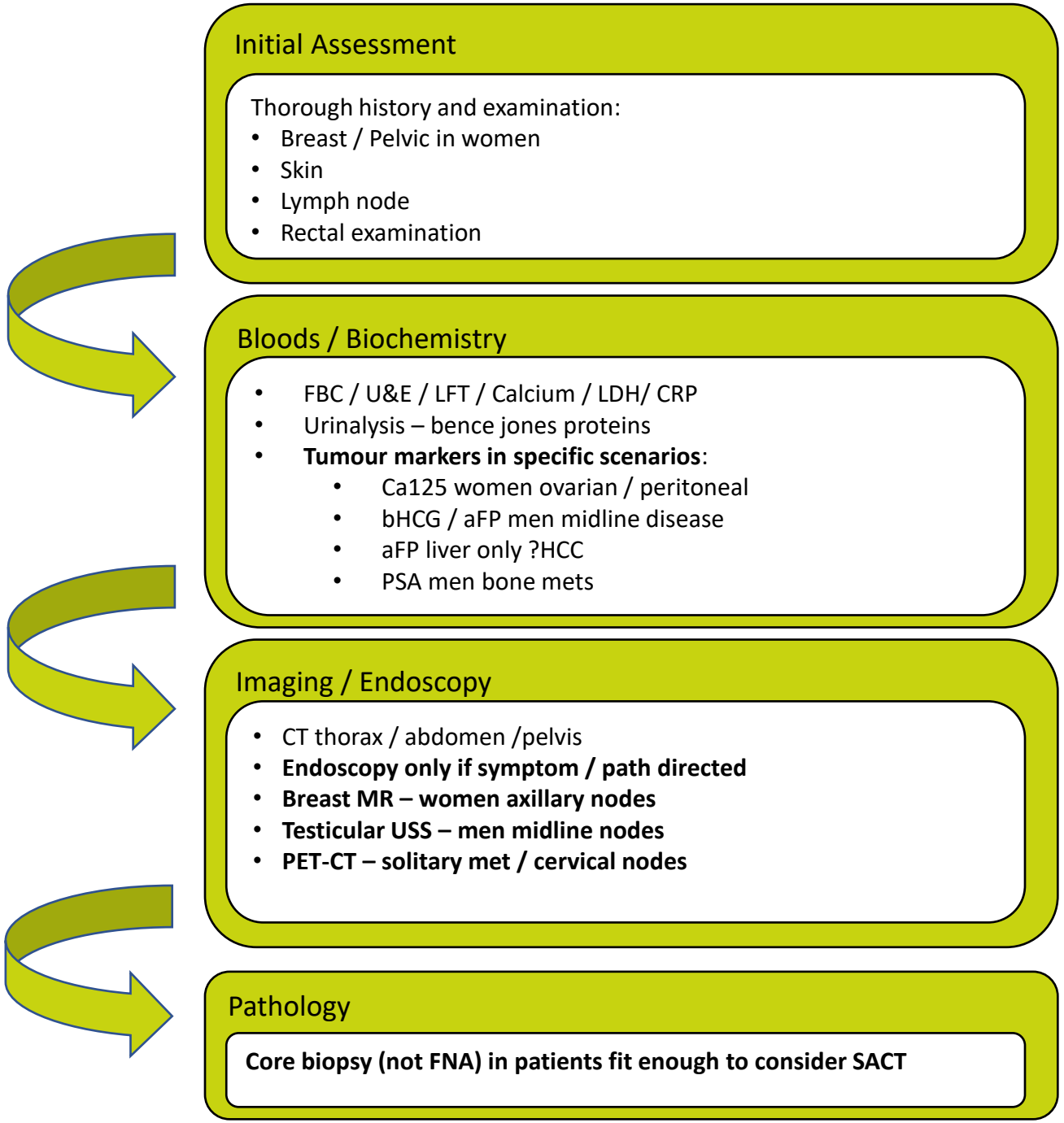
What does NICE recommend?

- ✓ Every hospital with a cancer centre / unit should have a CUP team
- ✓ Every hospital should have a CUP Clinical Nurse Specialist (CNS)
- ✓ Every out-patient with Malignancy of Unknown Origin (MUO) should be seen by CUP team in 2/52, in-patients 24hrs
- ✓ Every hospital should have CUP multidisciplinary team (MDT)
- ✓ Every cancer network should have a CUP group
- ✓ MUO patients should be offered investigation as per NICE guidance
- ✓ Perform investigations only where appropriate
- ✓ Use diagnostic factors to inform on decision aids
- ✓ When considering chemotherapy in non-specific subsets discuss pros and cons with patient

MUO Referral Pathway



MUO Investigation Pathway:



Psychological Aspects of MUO / CUP

Patients struggle to cope with CUP diagnosis:

- ❑ Poor understanding
- ❑ Struggle with uncertainty. Patients (and clinicians!) find it easier to cope with “certainty”
- ❑ Undergone multiple investigations
- ❑ Difficulty to treat
- ❑ Health care professional have no answers
- ❑ Difficulty explaining due to uncertainties

Patients often require additional support from their CNS during the investigation of their cancer.

When to stop investigating?

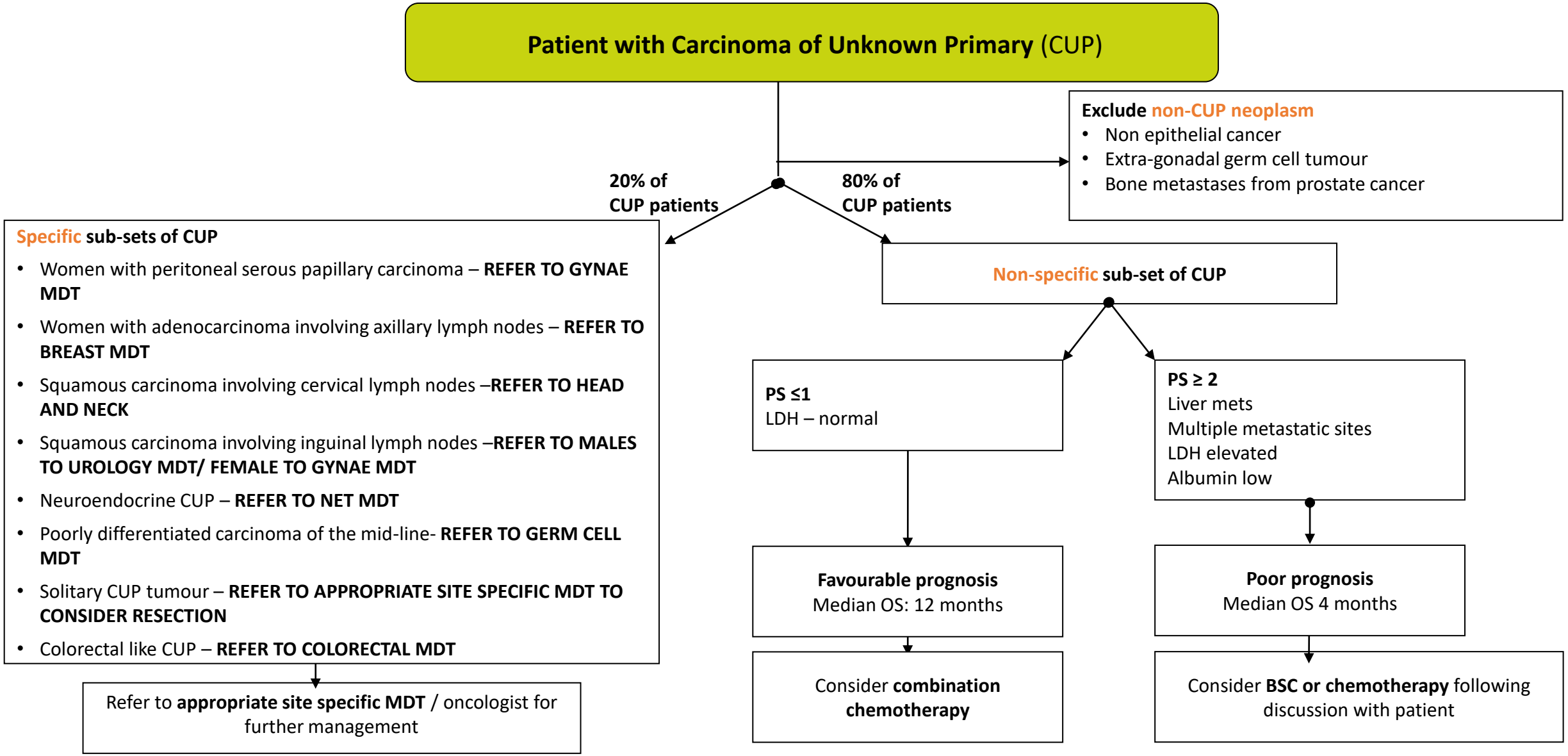
Investigations to identify a primary site should not continue if a patient is unfit for treatment i.e. due to poor performance status or co-morbidities and should only be performed if:

- ❑ The results are likely to affect a treatment decision
- ❑ The patient understands the potential benefits and risks of investigation and treatment and is prepared to accept treatment.

Explain to patients and carers if further investigations will not alter treatment options.

- ❑ Provide appropriate emotional and psychological support, information about CUP, treatment options and palliative care

Management of CUP



ESMO Clinical Practice Guidelines for diagnosis, treatment and follow up 2011

Consolidation: Quiz

http://www.nwyhelearning.nhs.uk/elearning/northwest/penninecacute/WebVersions2013/OncologicalEmergencies/

1. 40 year old male presents to his GP with right sided abdominal discomfort.
A USS shows multiple liver metastases but no obvious primary.
How would this be defined?
a. Malignancy of unknown origin (MUO)
b. Provisional cancer of unknown primary (pCUP)
c. Confirmed cancer of unknown primary (cCUP)

2. A 60 year old female presents in A&E with jaundice & abdominal discomfort; a CT TAP shows multiple liver metastases. Liver Biopsy shows adenocarcinoma but this could be from numerous possible sites.
How would this be defined?
a. Malignancy of unknown origin (MUO)
b. Provisional cancer of unknown primary (pCUP)
c. Confirmed cancer of unknown primary (cCUP)

3. A 55 year old male presents in A&E with pain & shortness of breath. A CT TAP shows lung, liver and nodal disease. A liver biopsy shows a metastatic adenocarcinoma. With further immunohistochemistry investigations and discussion at CUP multidisciplinary team still no primary is identified.
How would this be defined?
a. Malignancy of unknown origin (MUO)
b. Provisional cancer of unknown primary (pCUP)
c. Confirmed cancer of unknown primary (cCUP)

4. Which of the following are general symptoms of CUP?
a. Unexplained weight loss
b. High temperature
c. Loss of appetite
d. Fatigue
e. Anaemia

5. What is the one year survival for CUP patients presenting as an emergency?
a. 20%
b. 5%
c. 8%
d. 12%

6. Which investigations should be done in all MUO patients that are suitable for further investigation?
a. Colonoscopy
b. CT TAP
c. Tumour markers
d. Bronchoscopy

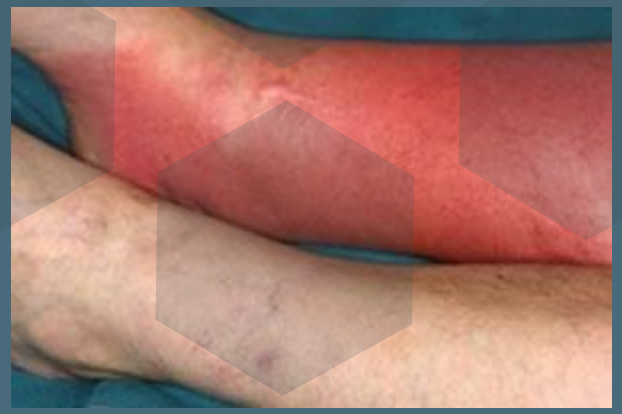
7. What percentage of patients present with a specific subset of cCUP?
a. 40%
b. 35%
c. 70%
d. 20%

8.What is the median survival for cCUP patients who have non-specific subset and are suitable for treatment?
a. 4 months
b. 24 months
c. 12 months
d. 36 months

9. **Within how many hours should an in-patient have a ward review by the CUP team** ?
a. 12 hours
b. 24 hours
c. 36 hours
d. 48 hours

10. Which of the following are poor prognostic features in cCUP?
a. Liver metastases
b. Performance status >2
c. Low albumin
d. Multiple metastatic sites

Cellulitis & Lymphoedema



PATIENT INFORMATION LINK:

Validated 07 Jun 21 – Lucy Casserley. LCasserley@sah.org.uk

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Cancer related lymphoedema

Lymphoedema is a common side effect of cancer treatment involving surgery or radiotherapy to their lymph nodes.

- Breast
- Head & Neck
- Gynae
- Urology
- Sarcoma
- Skin
- Colorectal

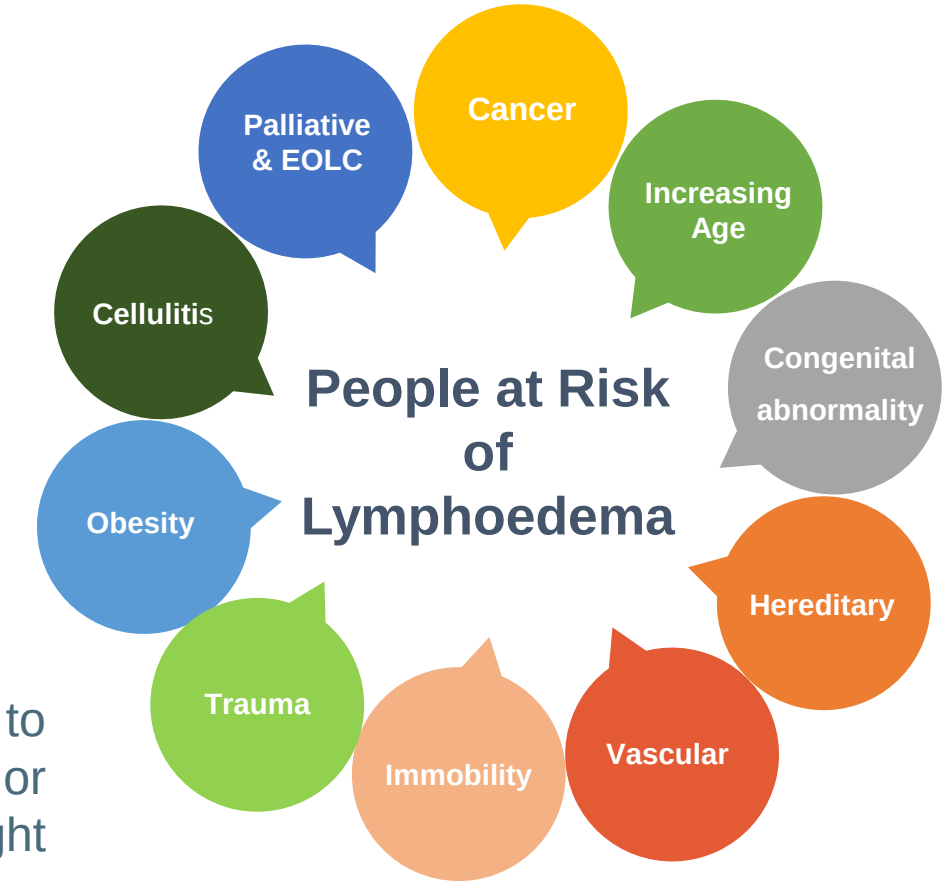
Key Fact about lymphoedema

- Lymphoedema is chronic swelling due to failure or incompetence of the lymphatic system.
- Affects lower or upper limbs, head and neck, trunk, breast or genitalia.
- Chronic oedema is often used interchangeably with the term 'Lymphoedema'

Signs and Symptoms of Lymphoedema

- Swelling of the affective body part
- Heaviness or achiness of the affected body part
- Recurrent **cellulitis**

People with **lymphoedema** are particularly susceptible to **cellulitis** because the lymphatic system is damaged or overloaded and does not function adequately to fight infection.



Cellulitis

Cellulitis is a sudden, non contagious infection of the skin, characterised by redness, swelling and heat, with associated pain and tenderness. It is usually accompanied by fever, nausea/vomiting and a feeling of generally being unwell.

What Causes Cellulitis?

The infection may enter via a break in the skin

- such as a scratch or insect bite,
- through a pre-existing wound or ulcer,
- through an area of skin inflammation, e.g. athlete's foot, eczema, dermatitis.

It may not always be possible to identify the cause & arise without warning

Link to Cellulitis video

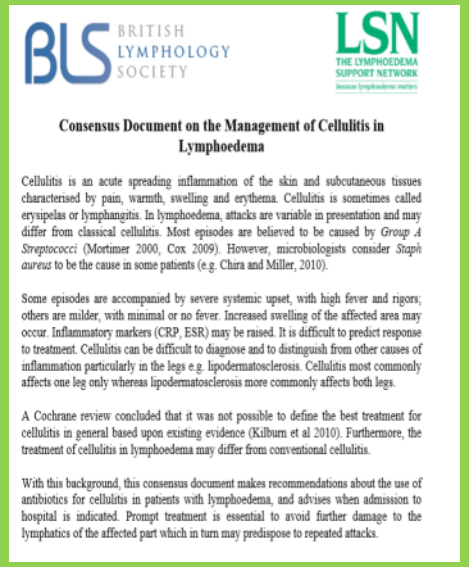
How Can I Recognise Cellulitis?

The patient often (but not always) feels unwell first, as if flu is starting. Symptoms may include fever, shivers, muscular aches and pains, headache, nausea, vomiting etc. The swollen area then develops a rash or becomes red, hot and tender to the touch. Swelling may dramatically increase and pain may occur in the swollen area, or the armpit, with lymphoedema of the arm, or groin with lymphoedema of the leg.

Treatment of Cellulitis

‘**Treatment of cellulitis in lymphoedema is very important**, not only because the sufferer may become very ill, but because lymph drainage routes risk being damaged further, in which case the swelling may worsen.’ This damage may not be reversible. Impacting on the person’s quality of life and long term management

- ✓ Treat with antibiotics immediately.
- ✓ Follow the BLS & LSN - Consensus Document on the Management of Cellulitis



BLS BRITISH LYMPHOLOGY SOCIETY

LSN THE LYMPHOEDEMA SUPPORT NETWORK

Consensus Document on the Management of Cellulitis in Lymphoedema

Cellulitis is an acute spreading inflammation of the skin and subcutaneous tissues characterised by pain, warmth, swelling and erythema. Cellulitis is sometimes called erysipelas or lymphangitis. In lymphoedema, attacks are variable in presentation and may differ from classical cellulitis. Most episodes are believed to be caused by *Group A Streptococci* (Mortimer 2000, Cox 2009). However, microbiologists consider *Staph aureus* to be the cause in some patients (e.g. Chira and Miller, 2010).

Some episodes are accompanied by severe systemic upset, with high fever and rigors; others are milder, with minimal or no fever. Increased swelling of the affected area may occur. Inflammatory markers (CRP, ESR) may be raised. It is difficult to predict response to treatment. Cellulitis can be difficult to diagnose and to distinguish from other causes of inflammation particularly in the legs e.g. lipodermatosclerosis. Cellulitis most commonly affects one leg only whereas lipodermatosclerosis more commonly affects both legs.

A Cochrane review concluded that it was not possible to define the best treatment for cellulitis in general based upon existing evidence (Kilburn et al 2010). Furthermore, the treatment of cellulitis in lymphoedema may differ from conventional cellulitis.

With this background, this consensus document makes recommendations about the use of antibiotics for cellulitis in patients with lymphoedema, and advises when admission to hospital is indicated. Prompt treatment is essential to avoid further damage to the lymphatics of the affected part which in turn may predispose to repeated attacks.

This document provides guidance of the higher dosage and duration of treatment required for people with cellulitis and lymphoedema.

Referral to the local lymphoedema service or GP is service unknown

Cellulitis could be the first presentation of lymphoedema

- ➢ If the lymphoedema is not being treated or controlled; people are at risk of developing recurrent cellulitis

Points to note:

- ✓ Patients with severe constitutional upset may require admission to hospital for intra-venous antibiotics
- ✓ Those people familiar with attacks and who have appropriate oral antibiotics to hand, should commence them immediately and finish the course completely (even if symptoms improve)
- ✓ Remove all compression garments until the area feels better and they can be tolerated again
- ✓ Other forms of treatment such as Manual Lymphatic Drainage and exercise programmes should be temporarily suspended
- ✓ Rest with the affected limb elevated in a comfortable position
- ✓ Drink plenty of water
- ✓ Paracetamol may be taken, however, anti-inflammatory medications such as ibuprofen should be avoided

Causes of Lymphoedema in Advanced Disease and EOLC.

In Lymphoedema an accumulation of oedema can occur when:

- Capillary filtration exceeds lymphatic drainage
- Normal functional integrity of the lymphatic system is altered (Second abnormalities)
- A reduced intrinsic muscle pump from the skeletal muscles during m

In advanced disease and EOL lymphoedema can occur with:

Advanced Cancer—treatments, metastatic lymphadopathy, venous con venous thrombosis, drugs

Advanced Heart Failure– venous hypertension, hypoalbuminemia, ana

Advanced Neurological Disease– immobility

End Stage Renal Disease- venous hypertension, hypoalbuminemia, in

End Stage Chronic Respiratory Disease— immobility, heart failure, hy

GatewayC

: https://courses.gatewayc.org.uk/course/view.php?id=64.

St Ann's Hospice every day makes a difference

Lymphoedema in Advanced Disease and End of Life

NHS Greater Manchester and Eastern Cheshire Strategic Clinical Networks

Causes of Lymphoedema | Assessment | Drug Treatments | Emergency/ reversible situations | Cellulitis and Red Legs | Additional treatments | Genital and Head and Neck Oedema | Frequently asked questions | Lymphoedema Services within GM | Useful Links

Cellulitis and Red Legs

Cellulitis—Follow local guidelines

The "Consensus Document on the Management of Cellulitis in Lymphoedema" (BLS 2016) advices on antibiotic treatment.
Oral antibiotics should be prescribed for a minimum of 14 days.
With any signs of septicaemia, a hospital admission should be considered.

Red Legs

Differentiating red legs and cellulitis can be difficult. The BLS Red Legs Pathway advices:

- **Bilateral leg cellulitis is extremely rare**. Consider lipodermatosclerosis, varicose eczema, gravitational dermatitis, contact dermatitis, contact dermatitis, fungal infection, heat induced redness, underlying conditions such as heart failure.
- **Unilateral Red Legs and the patient feels well**. Consider DVT, venous hypertension, varicosities, acute lipodermatosclerosis, phlebitis, staining. Red Flags to consider undiagnosed tumour/ disease progression leading to venous compression.
- **Unilateral Red Leg and the patient feels unwell.** If a unilateral red leg is present with pyrexia, heat, pain, oedema and skin blistering consider cellulitis. Red flags include necrotising fasciitis.

Tumour Lysis Syndrome

PATIENT INFORMATION LINK:

Validated 22 Feb 2021 – Dr Claire Mitchell - claire.mitchell34@nhs.net

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Tumour Lysis Syndrome (TLS)

- Is an oncological emergency characterised by metabolic and electrolyte abnormalities that can occur after the initiation of any cancer treatment, but can also occur spontaneously**.**
- Is caused by rapid breakdown of large numbers of cancer cells and subsequent release of large amounts of intracellular content into the bloodstream, which overwhelms normal homeostatic mechanisms.
- Can lead to acute kidney injury, cardiac arrhythmias, seizures, and neuromuscular dysfunction, which can cause considerable morbidity and in some cases death.
- Most commonly associated with highly proliferative, bulky, chemo sensitive haematological malignancies, particularly high-grade B-cell lymphoid malignancies (e.g., acute lymphocytic leukaemia and Burkitt's lymphoma). However, reports of TLS associated with other malignancies (including solid tumours) are increasing due to advances in cancer treatment
- Can be classified as:
  - Laboratory TLS (defined as the presence of two or more of the following metabolic abnormalities: hyperuricaemia, hyperphosphataemia, hyperkalaemia, or hypocalcaemia)
  - Clinical TLS (defined as laboratory TLS with one or more of the following clinical manifestations: acute kidney injury [i.e., increased serum creatinine], cardiac arrhythmia, seizure, or sudden death).
- Identifying at risk patients allows preventative measures to be instigated intensive hydration in combination with hypouricaemic agents and early recognition of TLS.

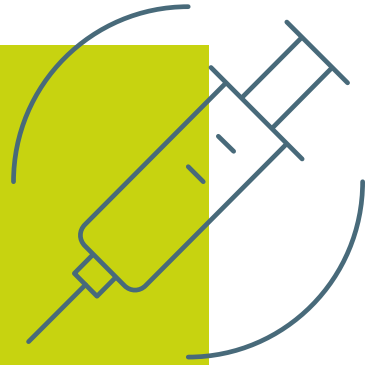
TLS Diagnosis

Risk Factors:

- Haematological malignancy
- Large tumour burden
- Chemosensitive tumour
- Recent chemotherapy
- Pre-existing renal impairment
- Dehydration
- Volume depletion
- Concurrent nephrotoxic medication

Investigations:

- Bloods:
  - Serum uric acid
  - Serum phosphate
  - Serum potassium
  - Serum calcium
  - FBC
  - LDH
  - Serum urea
  - Serum creatinine
- Urine pH



TLS Management

- Clinical manifestations of TLS should be managed urgently i.e. cardiac arrhythmias / seizures / AKI
- Management of the biochemical abnormalities of TLS should be managed concurrently
  - Hyperkalaemia
  - Hyperphosphataemia
  - Hyperuricaemia
- These should be managed with aggressive hydration to optimise renal function; use of phosphate-binding agents to manage hyperphosphataemia; and use of rasburicase to manage hyperuricaemia.
- Hyperkaleamia requires specific therapy and local clinical guidelines should be followed
- Renal dialysis is indicated if biochemical abnormalities are resistant to medical management, there is persistent volume overload or uncontrolled hypertension, severe acidosis, and/or uraemia with central nervous system toxicity
- Close clinical and biochemical monitoring of patients is essential after TLS has been diagnosed
- For selected patients allopurinol may be used to prevent the development of TLS if they are deemed at high risk

Hypercalcaemia

PATIENT INFORMATION LINK:

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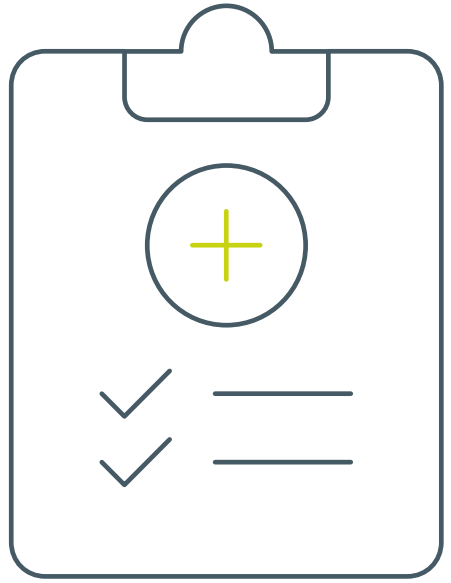
Hypercalcaemia

- Hypercalcaemia is the commonest life-threatening metabolic disorder associated with advanced cancer. Occurs in 10-20% people with cancer. This usually happens in the advanced stages of cancer and rarely in people in the earlier stages.
- **Calcium levels should be corrected according to albumin levels (Albumin-calcium correction)**
- Can occur in any malignancy but is most common in cancers of: The breast, squamous cell carcinomas (e.g. bronchus, upper oesophagus), lymphoma, myeloma, kidney and bladder and Para-neoplastic syndrome (Hormone imbalance caused by the tumour) especially in squamous cell carcinomas e.g. lung, head and neck, cervix.
- **Non-cancer causes of hypercalcemia should be also considered (e.g. hyperparathyroidism, medications)**
- Patients may be asymptomatic, and symptoms are often more related to the rate of rise rather than to the absolute level of the calcium
- Hypercalcemia due to cancer is mainly due to an increase in the amount of calcium absorbed from the bones, and an inability of the kidneys to excrete excess calcium. It is more likely in people with bone metastases
- Some cancer cells secrete substances that cause calcium to be released into the bloodstream from bones. Immobility, dehydration, anorexia, nausea and vomiting may also increase calcium levels.
- **Normal range**: normal serum corrected calcium is 2.2 - 2.6mmol/L

Signs and symptoms

- ✓ Fatigue, lethargy and feeling weak
- ✓ Anorexia
- ✓ Constipation
- ✓ Mild confusion
- ✓ Nausea and vomiting
- ✓ Drowsiness
- ✓ Polyuria and polydipsia
- ✓ Dehydration
- ✓ Confusion and agitation
- ✓ Muscle weakness, spasms, tremors
- ✓ Cardiac arrhythmias (rare)
- ✓ Coma



Some of these signs and symptoms may also be seen with other **electrolyte imbalances**

Management of malignancy

Is the patient symptomatic?	Polyuria, Thirst Anorexia, Constipation, Fatigue, Lethargy, Nausea/vomiting, Abdominal pain, Confusion, Arrhythmias, Seizure, Coma. Check PTH, PO4 + Mg
Review all medications:	• Withhold medicines known to cause or worsen hypercalcaemia where possible, (e.g. calcium supplements, vitamin D and thiazide diuretics). Lithium may also increase calcium levels - seek advice from Psychiatry before altering
Rehydration:	• All hypercalcaemic patients are dehydrated • Mild cases/asymptomatic patients may only need rehydration • Aim for 3 litres IV fluid over 24 hours; slower rates needed if comorbidities
Bisphosphonates:	• Following rehydration give zoledronic acid as a single dose according to renal function – 100ml 0.9% saline over at least 15 mins • **Do not give bisphosphonates if eGFR < 30** • Check Calcium level 5-7 days post bisphosphonate to allow full effect; other bloods as clinically indicated • If still high 7 days after treatment – seek advice from palliative care/AOT
Post treatment:	• Stop calcium supplements and drugs which may affect renal blood flow e.g. thiazide diuretics.

Other electrolyte imbalances

Hyperkalaemia - may be asymptomatic but can cause:

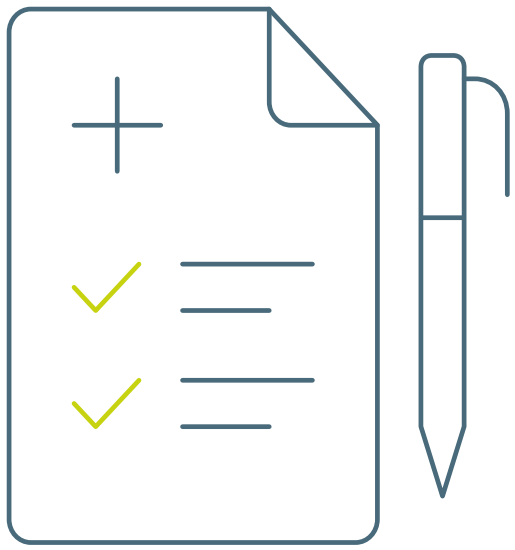
- ECG changes (Tall and peaked T waves, small or absent P waves, prolonged P-R interval, depressed ST segment & risk of ventricular tachycardia)
- Cardiac arrhythmias
- Muscle weakness
- Hypotension
- Bradycardia

Hypomagnesaemia may be asymptomatic. If symptoms are present they are often non-specific and include:

- Other metabolic abnormalities
- Muscle weakness and neuromuscular excitability
- Ataxia, tremor, seizures, carpo-pedal spasm
- Cardiac arrhythmias (widening of QRS complex and peaking of T waves on ECG)
- Altered mental state: Depression, psychosis, delirium and coma

Hypokalaemia and hypocalcaemia are commonly seen. Hypomagnesaemia should be considered in any patient with persistent / recurrently low potassium or calcium. Often seen in patients who have received platinum chemotherapy.

Electrolyte Imbalances - Diagnosis and Management



- ❑ Review bloods (inclusive of U+E / Liver and kidney function)
- ❑ ECG
- ❑ Review clinical history (previous episodes of electrolyte disturbance)
- ❑ Manage as per local policy (dependent on severity of electrolyte imbalance)

Extravasation

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Extravasation Definition

Extravasation is the accidental leakage of any liquid from a vein into the surrounding tissues. In terms of cancer therapy, extravasation refers to the inadvertent infiltration of systemic anti-cancer therapies (SACT) into the subcutaneous or subdermal tissues surrounding the administration site. This term is a generic term for this process however the scope of this guidance is when the substance involved is a systemic anti-cancer drug (SACT) including cytotoxic agents and monoclonal antibodies used in the treatment of malignant disease.

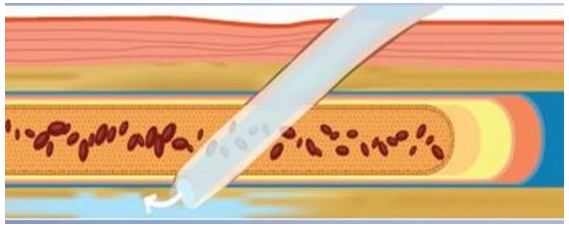
If extravasation occurs with vesicant drugs, the result may be tissue damage and necrosis – therefore prompt management is required to prevent permanent damage. The extent of injury has is determined by the following factors;

- ❑ the type of drug which extravasates
- ❑ the concentration and volume of drug in the tissue
- ❑ the location of the extravasation
- ❑ the co-morbidities and other patient factors

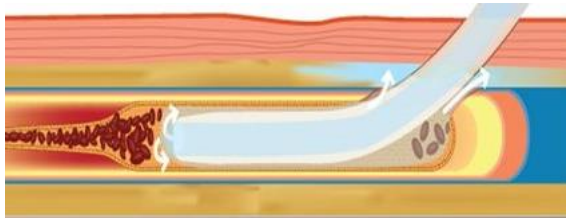
What is Extravasation

The medication to treat an extravasation injury must be delivered as soon as possible, vigilance is needed to recognise this emergency. Please view your local extravasation policy.

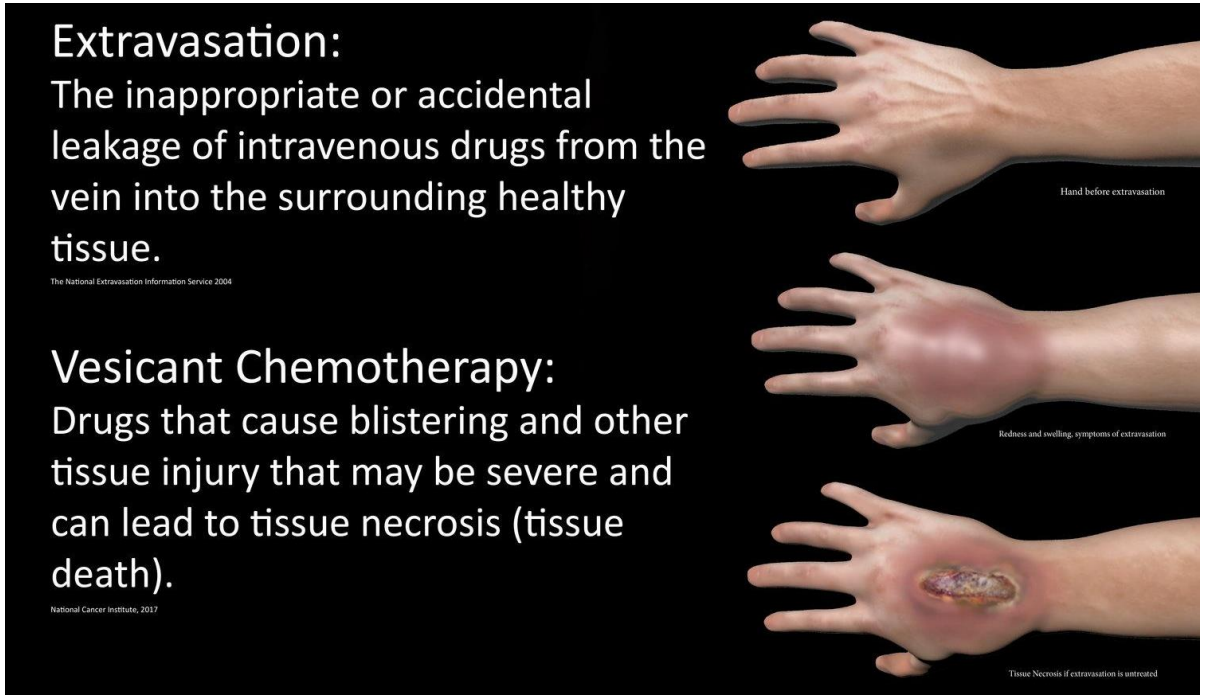
Extravasation happens when a vesicant medication escapes into the surrounding tissue by:



Cannula puncturing the wall of the vein



Fluid leaking from the vein at insertion site



The accidental leakage into surrounding tissue from the vein. Depending on the substance that 'extravasates', injury can range from a mild skin reaction to necrosis.

Vesicant - Cytotoxic or non cytotoxic substance that has the potential to cause blistering and ulceration and, if left untreated, tissue necrosis.

Non-vesicant (also known as infiltrates) - Some non-vesicants may still cause a reaction if they extravasate: Exfoliants - inflammation and shedding of the skin. Irritants - inflammation and irritation. Inflammatants - mild to moderate inflammation and flare. Neutrals - inert compounds

How to Recognise it

The early recognition and diagnosis of extravasation is critical as delays in the recognition and management of a vesicant extravasation increase the likelihood of tissue damage and necrosis. The awareness and responsiveness to signs and symptoms is the most effective way to recognise and detect extravasation. If an extravasation is suspected it is important that a correct diagnosis is established seeking a second opinion is always warranted if in any doubt.

Patients must be informed of the potential risk of extravasation and the importance of reporting any symptoms below irrespective of how insignificant they may be, however these symptoms may not be an extravasation, and a definitive diagnosis will need to be established:

- ✓ changes in sensation including pain, tingling, burning or discomfort.
- ✓ changes in flow rate (e.g. free flowing IV slowing down or becoming sluggish)
- ✓ swelling at the cannulation site or along the vein pathway
- ✓ induration
- ✓ erythema/ redness at injection site
- ✓ venous discolouration / blanching
- ✓ absence of blood return
- ✓ increased resistance when administering IV drugs
- ✓ inflammation or blistering

Specific courses of action depend upon

- ❑ the nature of the drug
- ❑ how much has extravasated
- ❑ the location of the extravasation

If an extravasation is suspected treatment must begin as soon as possible. Early detection and starting treatment within 24 hours can significantly reduce tissue damage. However, in some cases extravasation may only become apparent 1-4 weeks after administration.

If extravasation has occurred from a mix of more than one vesicant with both ‘disperse and dilute’ and ‘localise and neutralise’ treatment options e.g. CHOP regimen, then treat as for ‘localise and neutralise.

Visual Assessment

Visual signs, while by no means exclusive to extravasation, do provide useful confirmation for patient reporting of symptoms in suspected extravasation. The common signs, occurring at or around the site of the cannula – or, in the case of central line around the Central Venous Access Device and the surrounding area – include:

- Early symptoms - Swelling/oedema Redness/erythema
- Later symptoms - Inflammation Induration Blistering

Importantly, many of these symptoms do not occur immediately upon infusion, induration and blistering, in particular, tend to appear later in the extravasation process. Therefore, careful monitoring of the site should continue during the infusion time and for some time following an infusion. Patients should be informed of the importance of reporting any pain, swelling, inflammation, blistering around the infusion site that occurs when at home.

Warning signs related to the Central Venous Access Devices (CVADs)
In addition to the patient reporting of symptoms and visual assessment, the following may support a diagnosis of extravasation Signs of extravasation, in relation to the cannula, include:

- Increased resistance when administering IV drugs
- Slow, sluggish infusion or change in infusion flow
- Lack or loss of blood return from the cannula
- Leakage at or around the exit site and along the subcutaneous canal
- Aching discomfort in the shoulders / neck or pain, burning aching / discomfort, swelling of the chest wall.

Risk Factors

The risk of extravasation is increased in the following cases:

- ❑ Small and fragile veins or prominent but mobile veins.
- ❑ Hard and / or sclerosed veins as a consequence of previous chemotherapy or drug abuse.
- ❑ Cannulation in the antecubital fossa or over joint spaces.
- ❑ Patients with a predisposition to bleeding or those with coagulation abnormalities.
- ❑ Patients who have had multiple venepuncture or cannulation sites
- ❑ Patients who have undergone breast or lymph node surgery
- ❑ Decreased sensation or circulation as a result of peripheral neuropathy or diseases such as Raynaud syndrome, advanced diabetes mellitus, severe peripheral vascular disease, or situations such as lymphodema or superior vena cava syndrome.
- ❑ Clinical obesity i.e. have a Body Mass Index of >30.
- ❑ Communication difficulties hindering the early reporting of the signs and symptoms allowing the identification of extravasation. Examples include unconscious, sedated, confused or patients with learning difficulties.
- ❑ Inadequate securing of the cannula or visibility of the cannula site, or for tunnelled devices, the surrounding tissue when administering vesicant and cytotoxic medications.
- ❑ High flow pressure.
- ❑ Elderly patients.
- ❑ Use of topical anaesthetics may inhibit the detection of an extravasation.

Procedure for immediate management

The Christie NHS Foundation Trust

Flowchart A

Daunorubicin
Doxorubicin
Epirubicin
Idarubicin

A

Flowchart B

Actinomycin D (Dactinomycin)
Amasacrine
Carmustine
Dacarbazine
Mitomycin C
Mitoxantrone
Strepozocin

B

Flowchart C

Amiodarone
Amphotericin B
Aciclovir
Amrubicin
Arsenic Trioxide
Azacitidine
Bendamustine
Busulfan
Bortezomib
Cefotaxime
Co-trimoxazole
Clarithromycin
Diazemuls
Diazepam
Digoxin
Eribulin
Erythromycin
Etoposide
Etoposide Phosphate
Fluorouracil

C

Foscarnet
Ganciclovir
GTN Infusion
Irinotecan
Magnesium Sulphate 20%
Mannitol
Methylene Blue
Methotrexate
Phenobarbitone
Pixantrone
Potassium Chloride > 40mmols
Potassium Phosphate
Prostaglandins
Raltitrexed
Temsirolimus
Thiopental
Topotecan
Trabectedin
Vancomycin
Unlicensed Clinical Trial Drugs
X-ray contrast media

Flowchart D

Adrenaline
Aminophylline
Asparaginase
Bevacizumab
Bleomycin
Cabazitaxel
Carboplatin
Cetuximab
Calcium Chloride
Calcium
Gluconate≥10%
Cisplatin
Cladribine
Clofarabine
Cyclophosphamide
Cytarabine
Dobutamine
Dopamine
Fludarabine

D

Gemcitabine
Hypertonic Sodium Chloride ≥10%
Hypertonic glucose
Ifosfamide
Interferon
Interleukin-2
Immunotherapy Melphalan
Monoclonal antibodies
Nelarabine
Noradrenaline (Norepinephrine)
Oxaliplatin
Paclitaxel Albumin (Abraxane)
Parenteral Nutrition
Pentostatin
Phenytoin
Sodium Bicarbonate
Thiotepa
Treosulfan
Vasopressin

Flowchart E

Docetaxel
Paclitaxel

Vinblastine
Vincristine

Vindesine
Vinorelbine
Vinflunine

E

Flowchart F

Liposomal Doxorubicin
Liposomal
Cytarabine/Daunorubicin-Vyxeos

F

Follow up and documentation

The patient should be regularly reviewed by the clinical team following an extravasation and daily or alternate day review should be arranged for the week following the incident. The patient should then be reviewed weekly until complete resolution of symptoms. Arrange required follow up out-patient/in-patient appointment and clearly document on the clinical web portal.

All patients with Central Venous Access Device (CVAD) extravasations must return for assessment of the affected area within 48 hours following the extravasation.

Arrange referral to the plastic surgeons in severe cases

Information documented must include;

- ❑ Patient name and hospital number
- ❑ Clinical area
- ❑ Date and time of extravasation
- ❑ Name of extravasated drug and volume (approximately)
- ❑ Signs and symptoms
- ❑ Description of the IV access including:
  - ✓ site
  - ✓ size and position of cannula
  - ✓ number of attempts at obtaining venous access and positions
  - ✓ drugs administration sequence
  - ✓ technique used and blood return
- ❑ Description of extravasation area including size and appearance
- ❑ Digital photograph of area if applicable.
- ❑ Step-by-step management :
  - ✓ aspiration if possible (volume)
  - ✓ cold/heat
  - ✓ antidote used (where applicable)
  - ✓ details of any pain relief given
  - ✓ referral details and follow up

Bowel Obstruction

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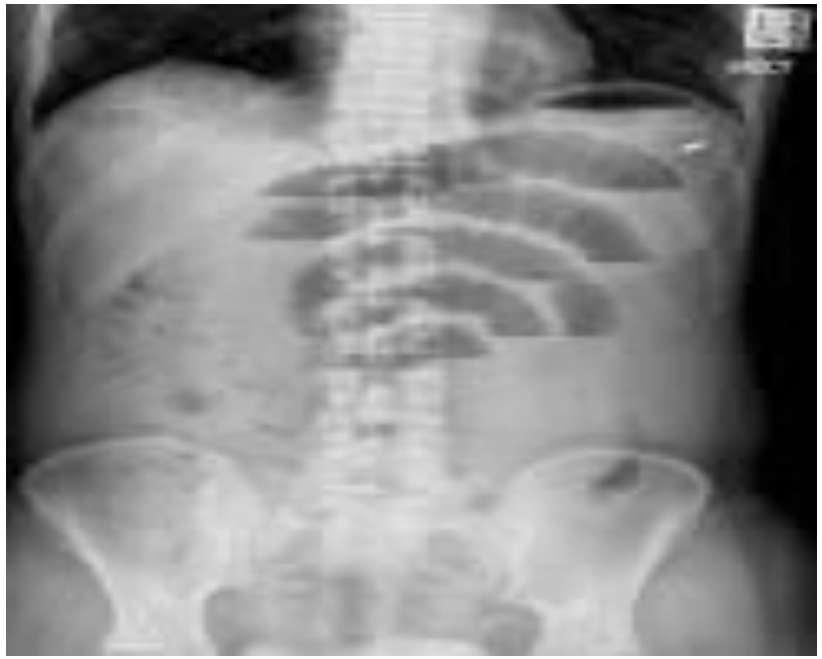
Bowel Obstruction

Malignant bowel obstruction is the mechanical or functional obstruction of the progress of food, faeces and fluids through the gastro-intestinal tract.

Signs and Symptoms

- ❑ Feeling bloated and full
- ❑ Constipation
- ❑ Nausea
- ❑ Vomiting
- ❑ Abdominal pain



Diagnosis & Management

- ❑ Physical examination of the abdomen (also helps to rule out gastroenteritis or pancreatitis).
- ❑ Take bloods (checking for anaemia, kidney or liver dysfunction).
- ❑ Plain X-Ray of abdomen
- ❑ Additional imaging - CT abdo /pelvis. (barium studies may also be indicated)

- ✓ Treatment is highly dependent on the cause of the obstruction, and some patients may be suitable for surgery.
- ✓ Partial blockage will not usually require surgical intervention, but this will depend on the size and location of the blockage.
- ✓ Non-surgical management will include:
  - ❑ Review current medications (avoid 5HT3 antagonists, codeine or other drugs which may lead to constipation)
  - ❑ Prescribe anti emetics and analgesics – non oral route may be required to control symptoms
  - ❑ Trial of dexamethasone iv if not contraindicated
  - ❑ A period of bowel rest -with IV fluids and NG suction
  - ❑ If not resolving refer to dietician and consider if appropriate to commence TPN
  - ❑ If bowel function returns consider low residue diet, commence regular stool softeners and counsel to avoid exacerbating factors

Diagnosis and Initial Management

This algorithm largely pertains to ovarian cancer although can be applied to MBO associated with peritoneal carcinomatosis in other disease types

Symptoms & Signs *
Nausea and/or vomiting
Constipation/diarrhoea
Abdominal pain
Distension
Palpable tumour mass
Tympanic percussion
Tinkling/abnormal bowel sounds
Fluid levels/bowel loops on AXR

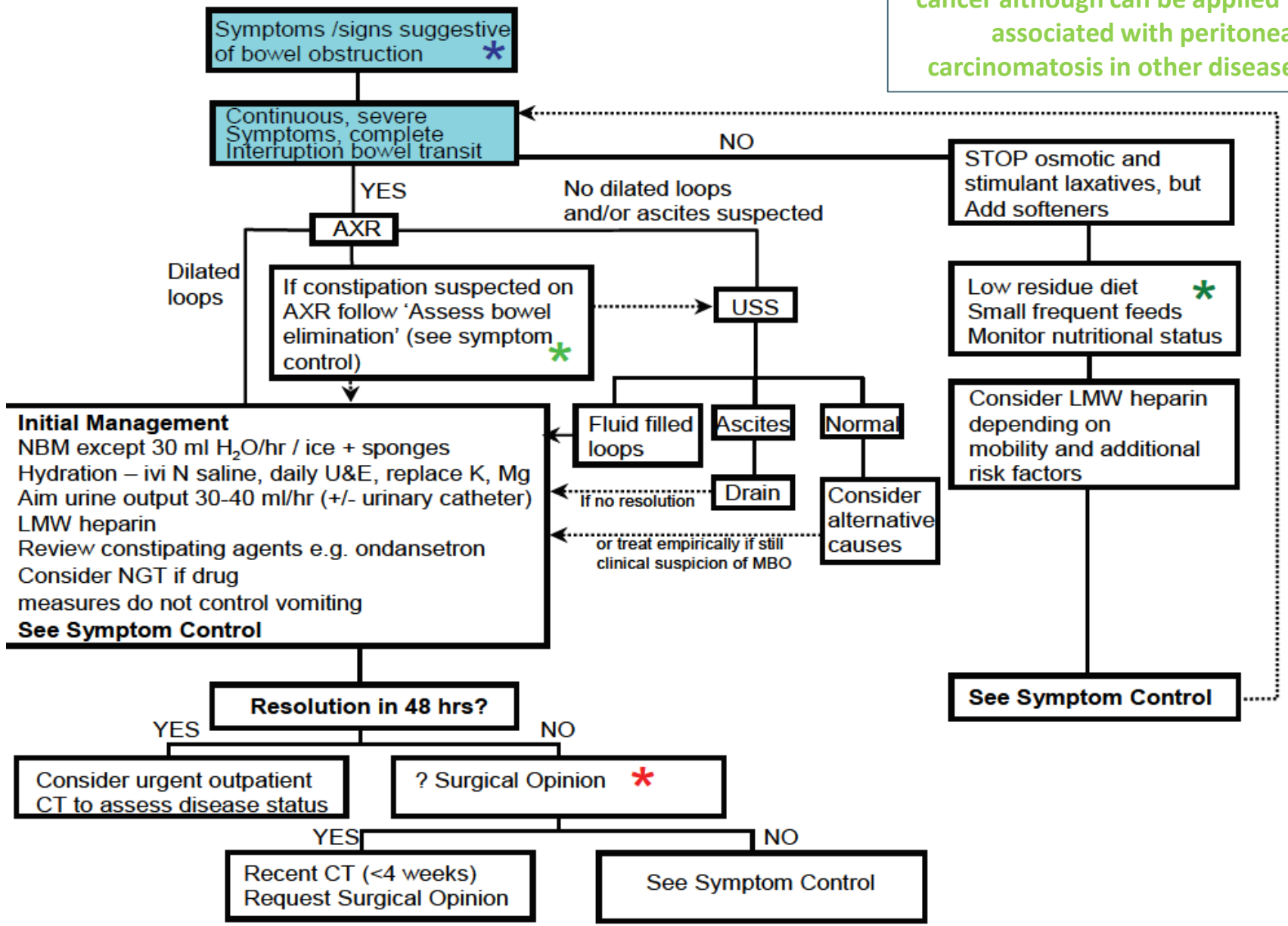
Surgical Opinion *
Some patients may be suitable for surgery:
Especially if:
- Satisfactory performance status
- No ascites
- Single site obstruction
- No retroperitoneal disease
- No liver metastases
- No mesenteric involvement

Chemotherapy options *
- Selected patients
- Oncology Opinion

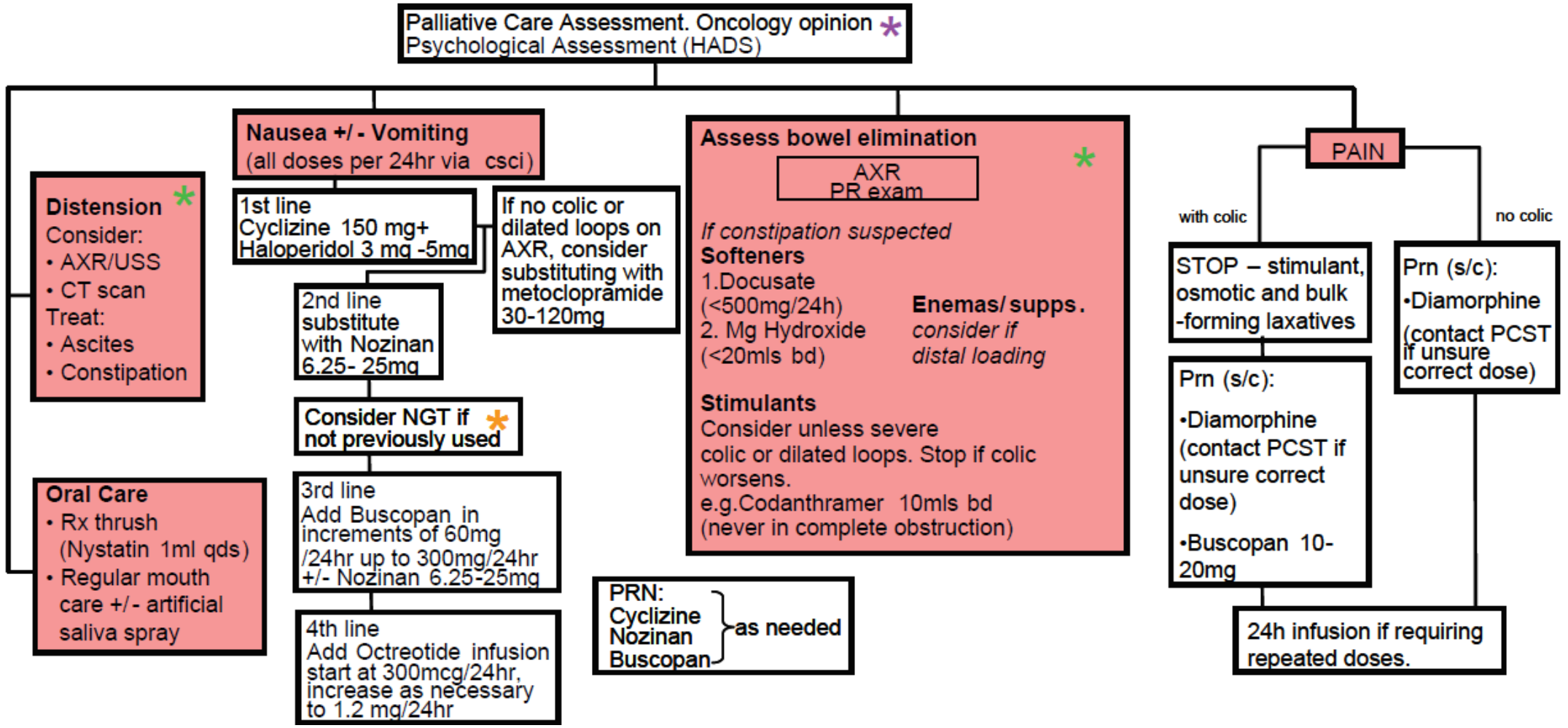
TPN
May be appropriate in selected cases, e.g. ongoing chemoRx.
Requires good KP and reasonable survival expectancy. *
Multidisciplinary team decision

PEG or RIG *
INDICATIONS:
- A more acceptable method than NG for longterm decompression
- Use if drug measures fail to reduce vomiting

RELATIVE CONTRAINDICATIONS
- Failure of NGT to control symptoms
- Ascites
- Coagulopathy
- Terminal phase



Symptom Control



Ongoing Management

1. Initial measures reviewed according to patients progress
2. Discharge home usually important goal for patient, early planning, initiation support measures important
3. Consider alternative routes for drug administration, rationalisation of unnecessary medication to facilitate home care.
4. Communication with patient, family and community support vital
5. Terminal Phase Management: Review need for ivi/TPN; comfort measures, consider referral to Palliative care, consider COD pathway.

Acute Kidney Injury

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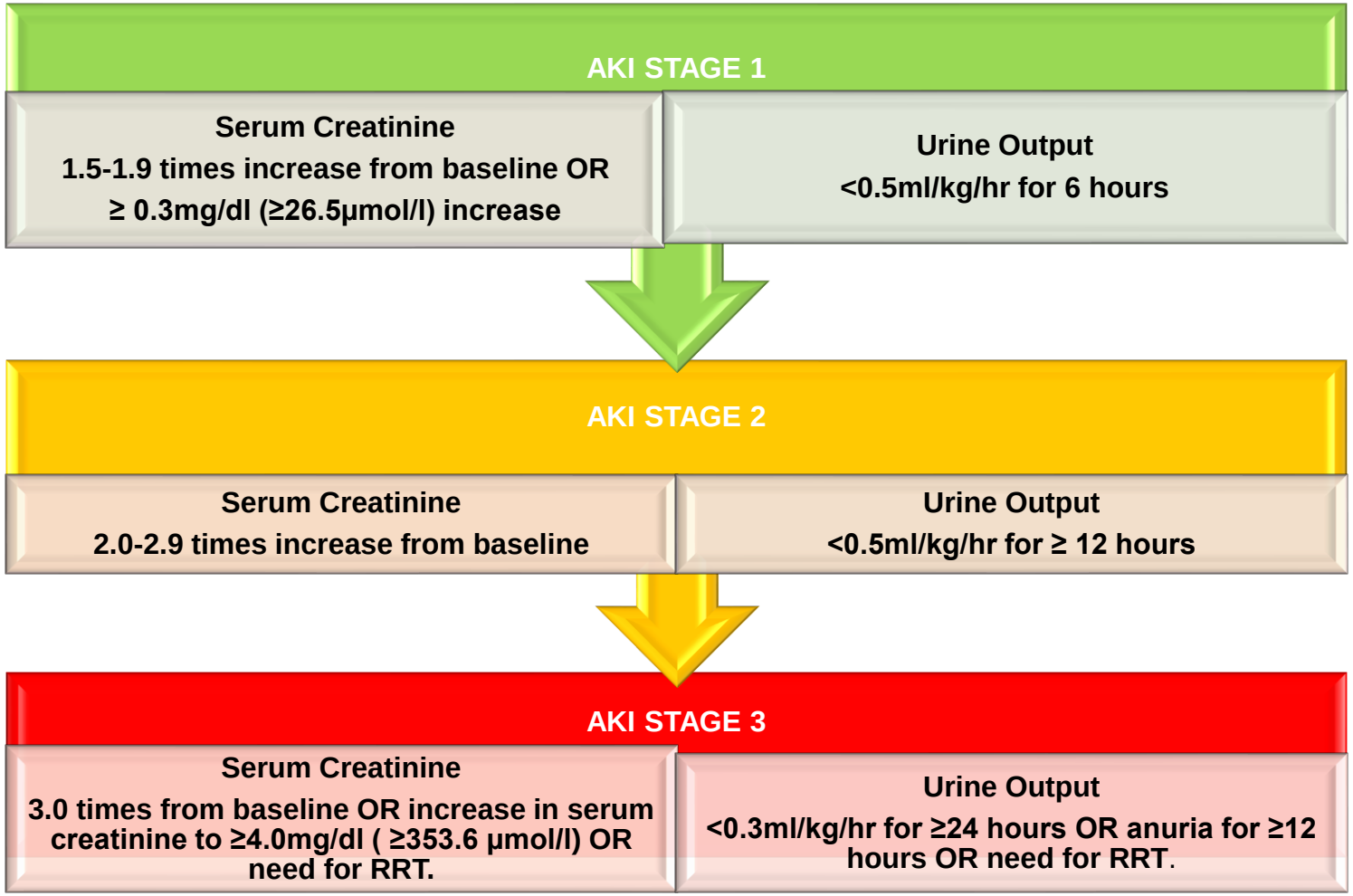
What is Acute Kidney Injury (AKI)?

Acute Kidney Injury, previously known as Acute Renal failure, encompasses a wide spectrum of injury to the kidneys, not just kidney failure.

- Acute Kidney Injury (AKI) is the sudden deterioration in renal function over a number of hours or days.
- It can be silent in nature with signs and symptoms occurring later.
- Early identification and management of AKI is crucial to prevent worsening of renal function and renal impairment.
- AKI can resolve with early management and treatment of the cause.
- Renal function will continue to deteriorate unless AKI is recognised and its caused identified and treated.
- AKI prevention is key and can be achieved through increased awareness and patient empowerment.

AKI Staging



What is creatinine?

- ✓ Creatinine is a waste product produced by muscle
- ✓ AKI is detected by a rise in creatinine and/or a reduction in urine output
- ✓ The severity of the AKI is related to the change from the patient's baseline creatinine

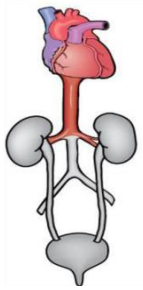
Risk Factors

- ❑ Chronic Kidney Disease (CKD)
- ❑ Heart Failure
- ❑ Liver Disease
- ❑ Diabetes
- ❑ History of AKI
- ❑ Hypovolaemia
- ❑ Sepsis – ***always consider AKI in septic patient***
- ❑ Deteriorating EWS
- ❑ Symptoms/history of urological obstruction
- ❑ Oliguria (urine output less that 0.5ml/kg/hr)
- ❑ Aged 65 years or over.

Causes of AKI can be divided into three categories

Pre Renal

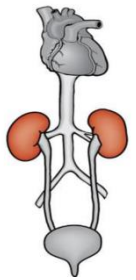
- Blockage to flow e.g. thrombosis.
- Hypovolaemia D+V, blood loss, sepsis.
- Drugs e.g. ACE inhibitors.
- Low cardiac output.



Most common cause of AKI – flow disruption to the kidney.

Intrinsic

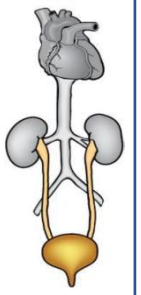
- Ischaemic injury
- Nephrotoxic injury
- Hardest to treat likely to need renal team involvement
- Urine dip will aid diagnosis



Damage to the kidney itself due to prolonged reduction of blood supply

Post Renal

- Bladder tumours
- Cervical carcinoma
- Urethral Stricture
- Intra abdominal hypertension
- Renal calculi
- Blocked catheter



Consequence of urinary tract obstruction.

Nephrotoxic medications

Certain medications can be nephrotoxic in nature and therefore can have a negative impact on renal function. The list below highlights some medications that are Nephrotoxic (non-exhaustive):

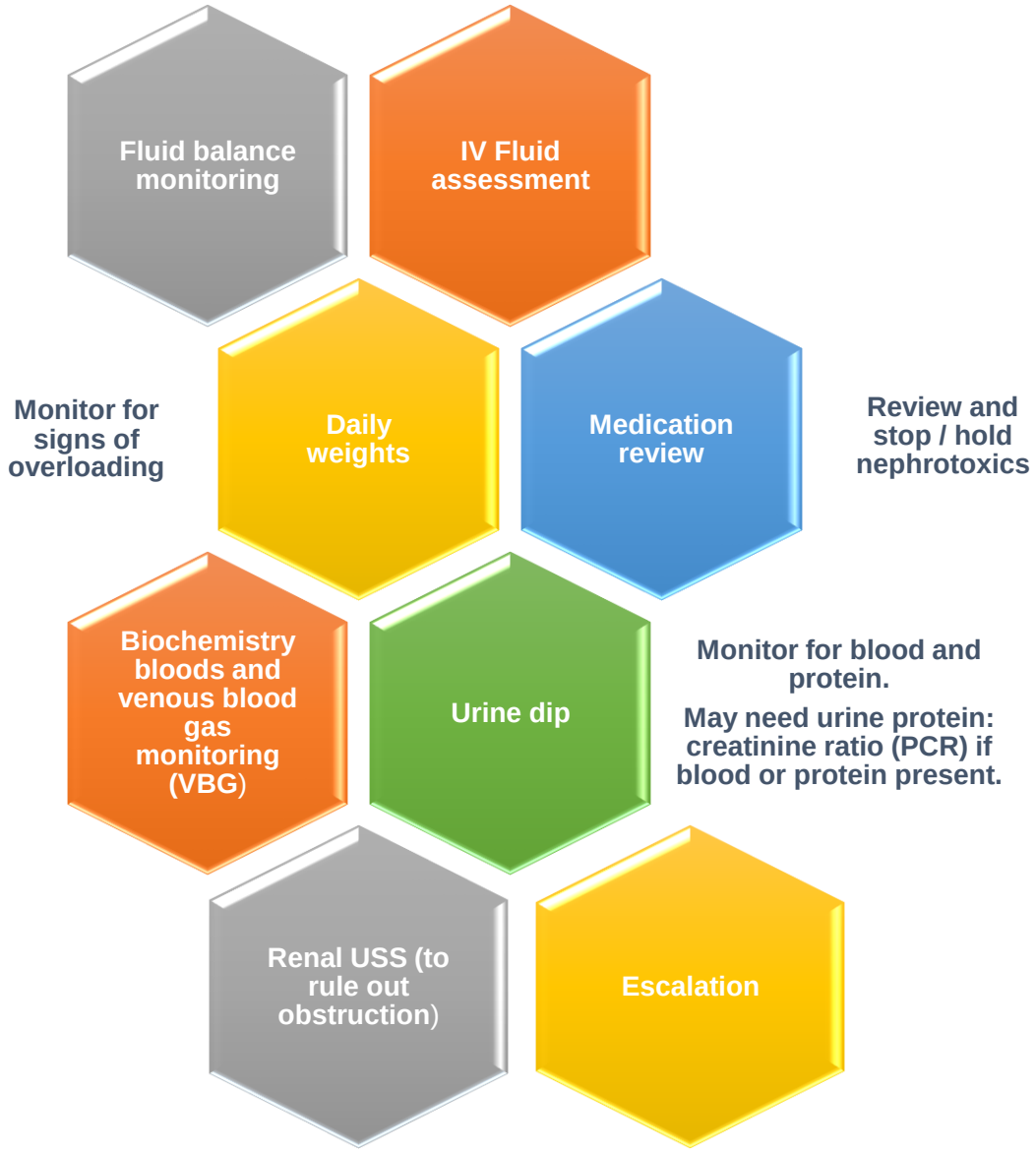
- ✓ NSAIDs e.g. ibuprofen
- ✓ Angiotensin-converting enzyme [ACE] inhibitors e.g. Ramipril
- ✓ Angiotensin II receptor antagonists [ARBs] e.g. Candesartan
- ✓ Diuretics within the past week, especially if hypovolaemic e.g. furosemide
- ✓ Some antibiotics e.g. Gentamicin
- ✓ Ciclosporin
- ✓ Use of iodinated contrast agents e.g. CT scan

In AKI all nephrotoxic medications must be reviewed and either stopped, held or changed to another medication that is not nephrotoxic.

Management of AKI

A patient may require renal replacement therapy in the form of Haemodialysis or Haemofiltration if the patient does not respond to medical management for:

- ❑ Hyperkalaemia
- ❑ Metabolic acidosis
- ❑ Symptoms or complications of uraemia (for example, pericarditis or encephalopathy)
- ❑ Fluid overload
- ❑ Pulmonary oedema.



Pain

PATIENT INFORMATION LINK:

Validated 12/04/21– claire.mckenzie13@nhs.net

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Specific Symptoms

Pain assessment

- Good assessment is vital for effective management.
- Many palliative care patients have more than one pain.
- Assess each pain separately and if possible identify the likely cause of the pain.
- Pain may be constant or intermittent (breakthrough pain).

Palliative-Care-Pain-and-Symptom-Control-Guidelines.pdf (england.nhs.uk)

ASK ABOUT:

- Site and radiation - a body diagram can help.
- Character - a list of descriptive words may help.
- Onset, intensity and severity - a rating scale can help e.g. a numerical score where 0 = no pain and 10 = severe / overwhelming or a simple verbal rating scale – none / mild / moderate / severe.
- Timing and duration.
- Exacerbating factors.
- Relieving factors, including medication.
- Effect on function, sleep and mood.
- Response to previous medication and treatment – associated symptoms.
- Consider using a structured pain assessment tool to record the patient's pain.
- Examine the patient to try and determine the cause of the pain(s), e.g. abnormal sensation, tender hepatomegaly.
- Assess the impact of the pain on the patient and family. Consider if other factors, such as emotional, psychological or spiritual distress, are having an effect on pain perception.
- Consider appropriate investigations to try and determine the cause of the pain.

Common Causes of Pain

- **Disease related:** direct invasion by cancer, distension of an organ, pressure on surrounding structures: —
  - Bone pain: worse on pressure or stressing bone or weight bearing.
  - Nerve pain: burning, shooting, tingling, jagging, altered sensation, dermatomal distribution.
  - Spinal cord compression: back or spinal pain in a radicular “band-like” pattern.
  - Liver pain: hepatomegaly, right upper quadrant tenderness, referred pain in shoulder tip.
  - Raised intracranial pressure: headache, nausea or both, often worse in the morning or with lying down.
  - Colic: intermittent cramping pain. Consider bowel obstruction, bladder spasm.

- **Treatment-related:** chemotherapy neuropathy, constipation due to opioids, radiation-induced mucositis.

- **Debility:** pressure sores, severe cachexia, oral candidiasis.

- **Other unrelated illnesses:** arthritis, osteoporosis, vascular disease, gastritis.

Common types of pain in palliative care patients

and suggested management

Pain management – general points

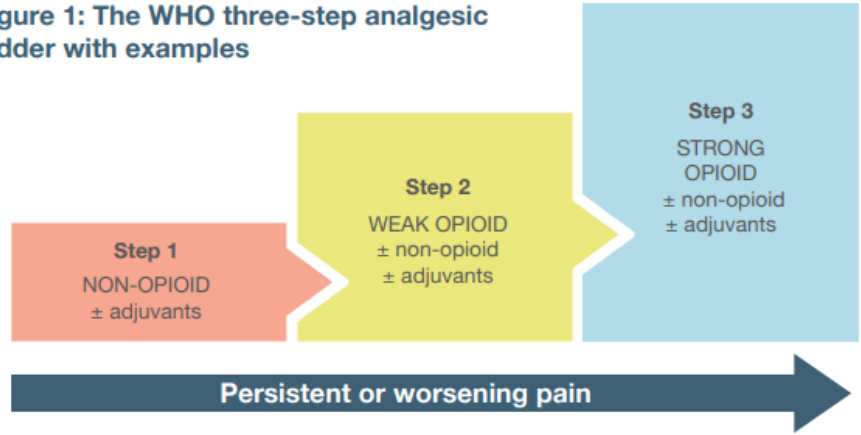
- ❑ Set realistic goals, e.g. pain-free overnight / at rest / on movement.
- ❑ Give patients and those close to them information and instructions about the pain and its management. Encourage them to take an active role in managing the pain.
- ❑ Review pain control regularly.
- ❑ Manage patient expectations regarding optimal pain management, as it may not be achievable for them to be pain-free at all times.
- ❑ Consider checking renal and liver function before initiating analgesics, if no recent blood results are available.

Pain	Examples	Character	Initial management	Adjuvants	Consider
Deep somatic	Bone metastases	Gnawing, aching. Worse on moving or weight bearing	WHO Ladder	NSAIDs gabapentin	Radiotherapy surgery; bisphosphonate
Visceral	Liver, lung, bowel	Sharp ache or deep, throbbing. Worse on bending or breathing.	WHO Ladder	Corticosteroid NSAIDs	Nerve Block; Surgery
Neuro-pathic	Nerve compression; Nerve damage; Bone metastases	Burning, shooting; sensory disturbance in affected area	WHO Ladder	Tricyclic antidepressant e.g. amitriptyline; anti-epileptic e.g. gabapentin/ pregabalin; SNRI e.g. duloxetine; Corticosteroid	Radiotherapy; TENS/PENS; Nerve block; Topical capsaicin
Smooth muscle spasm	Bowel obstruction; Bladder spasm	Deep, twisting, colicky (waves)	May be sensitive to opioid - variable	Anticholinergic - e.g. hyoscine butylbromide for bowel colic	Surgical relief of obstruction

Strong Opioids

- Weak opioids include codeine and tramadol. These have a ceiling dose.
- Strong opioids can be carefully titrated to obtain analgesia while avoiding toxicity.
- Patients who require a background strong opioid are usually prescribed a breakthrough dose 1/6 the strength of their background dose.
- Although oral analgesia is usually preferable, parenteral opioids may be used in cases of vomiting, reduced absorption, ineffective swallow or in last days of life.
- Some opioids can accumulate in renal failure. Oxycodone is preferable to morphine in patients with renal impairment, fentanyl and alfentanil are mainly hepatically excreted and are often selected as background opioids in patients with severe renal impairment.
- Drowsiness, small pupils and myoclonus can indicate toxicity. Respiratory depression with hypoxia or RR<8 indicates severe toxicity and may require reversal with naloxone.

Figure 1: The WHO three-step analgesic ladder with examples



Example - Step 1	Example - Step 2	Example - Step 3
Start **regular** paracetamol ▪ usual dose 1g four times a day, but dose reduction is advisable in many palliative care patients *(see details below)* **and/or** NSAID e.g. ibuprofen, naproxen or celecoxib	If pain is persistent or worsening ▪ stop paracetamol if not helping pain ▪ start codeine 30-60mg four times a day **regularly** *(Step 2 may be omitted – see details below)*	On maximum paracetamol and codeine, persistent or worsening pain ▪ stop paracetamol if not helping pain ▪ stop codeine ▪ commence strong opioid e.g. oral morphine *(see details below)*

Choice of initial analgesic should take into account the cause and severity of pain

- For mild pain start at step 1.
- For moderate pain start at step 2 or step 3 *(See section below re weak opioids).*
- For severe pain, start at step 3.

By mouth	Whenever possible, analgesics should be given by mouth.
By the clock	Doses of analgesic should be given at the appropriate regular time intervals, depending on the preparation and its duration of action.
For the individual	Management of an individual patient's pain requires careful assessment and a decision about appropriate treatment options.
With attention to detail	The first and last doses of the day should be linked to the patient's waking time and bedtime. Ideally, the patient's analgesic medicine regimen should be written out in full for patients and their families to work from and should include the names of the medicines, reasons for use, dosage and dosing intervals. Patients should be warned about possible adverse effects of each of the medicines they are being given.

Common Issues in Pain Management

- Treating parenteral medication as an escalation of treatment (or seeing CSCI as necessarily indicating last days of life) rather than selecting route based on ability to swallow or absorb oral medication.
- Not appreciating that renal failure causes opioids to accumulate and that AKI can precipitate toxicity.
- Initiating long term controlled drugs without counselling about drug driving legislation.
- Inappropriately high or low breakthrough doses compared to equivalent background opioid

Venous Thromboembolic Disease

PATIENT INFORMATION LINK:

Validated 08/11/21– prerana.huddar@nhs.net

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What is Venous Thromboembolic Disease (VTE)?

The development of a blood clot (thrombus) within a vein that can later travel (embolise) to another part of the body's venous vasculature

The broad classifications are:

- Pulmonary embolism (thrombus that travels to the lungs): PE
- Deep vein thrombosis (thrombus that originates and sometimes travels along the deep veins in the limbs): DVT
- Superficial thrombophlebitis
- Catheter / device associated thromboembolic disease

VTE in Cancer Patients

x4 to x7 higher risk for initial VTE - patients with malignancy than patients without cancer

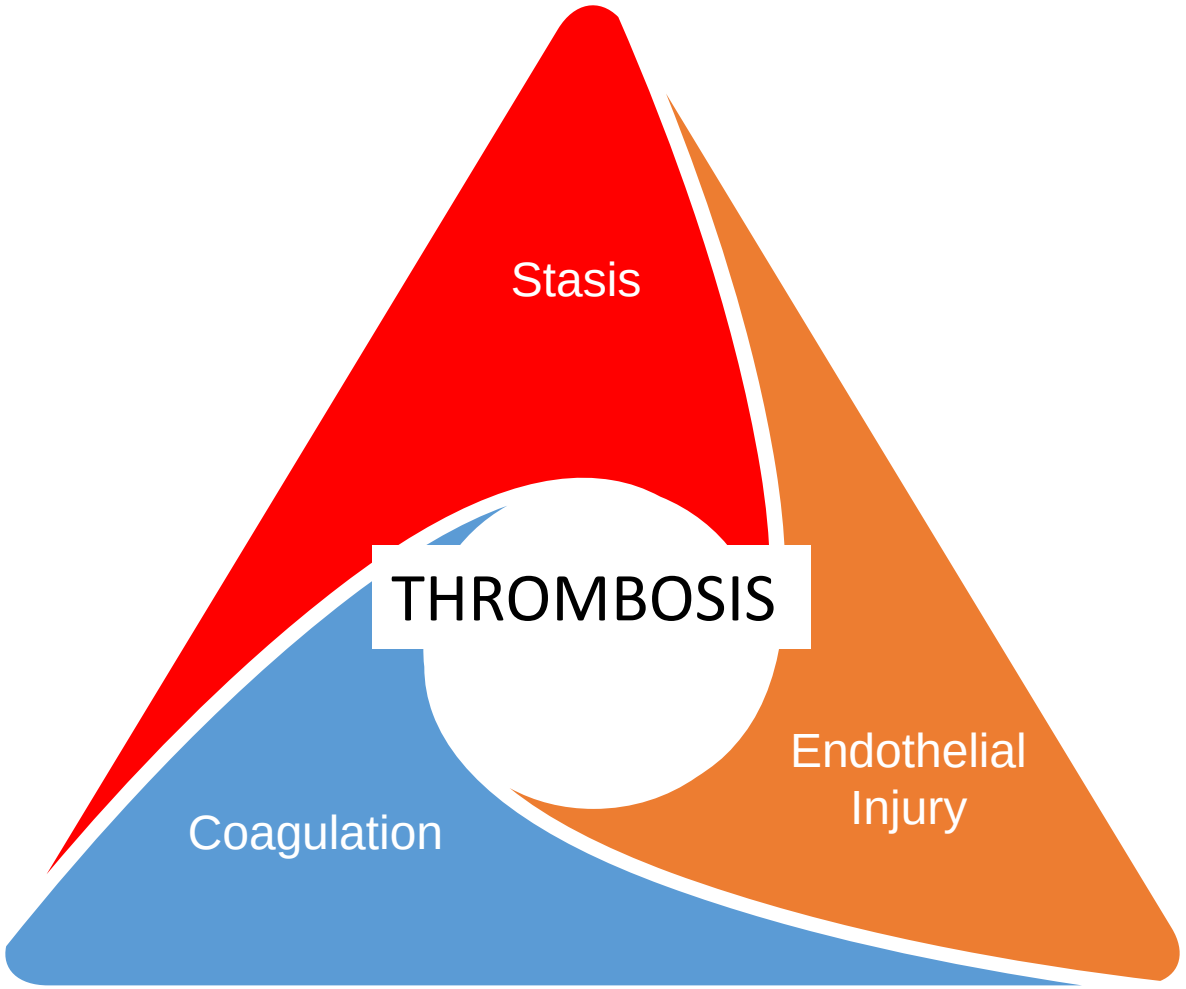
x3 higher risk recurrent VTE

x2 higher risk of bleeding on anticoagulation

x10 higher risk of death with VTE

Up to 20% of newly diagnosed VTE will have an underlying malignancy

Pathogenisis



STASIS
Hospitalisation
Post-operative recovery
Side effects of systemic anticancer treatment
Neurological or musculoskeletal complications e.g. MSCC or symptomatic bone metastases
Covid19 infection

ENDOTHELIAL INJURY
Tumour thrombus
↑ Blood pressure due to VEGFi medication
Cytokine release damaging endothelial wall
Covid19 infection

COAGULATION
↑ procoagulant cytokines
↑ activation of platelets
Abnormal immune response
Deranged lipid profile due to SACT side effect
Covid19 infection

When to suspect:

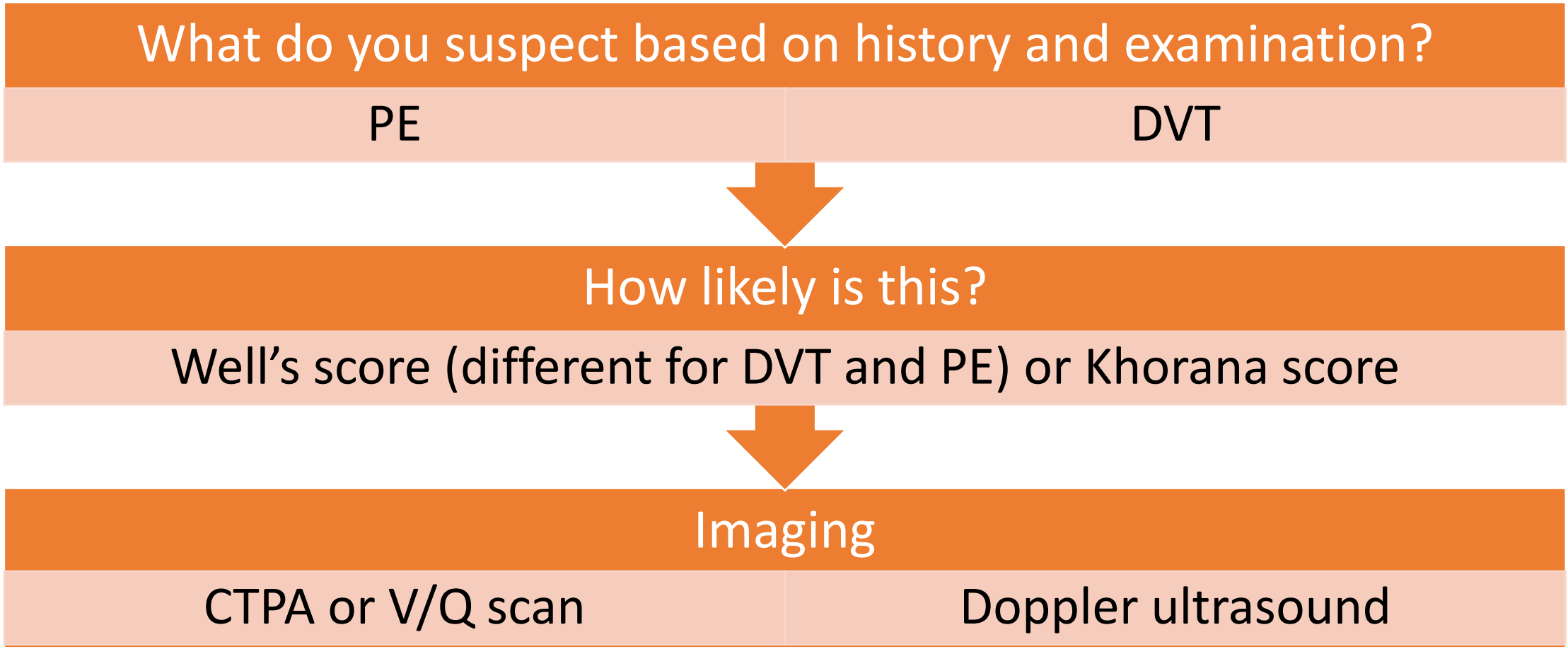
DVT

- Unilateral limb pain
- Asymmetric swelling
- Heat / discolouration
- Pain over an associated device

PE

- Pleuritic chest pain
- Shortness of breath
- Palpitations / tachycardia
- Haemoptysis

- Can be asymptomatic!
- D-dimer not usually helpful


What do you suspect based on history and examination?
PE
DVT
How likely is this?
Well’s score (different for DVT and PE) or Khorana score
Imaging
CTPA or V/Q scan
Doppler ultrasound

Which anticoagulants can I use?

- Generally, treatment dose low molecular weight heparins (LMWH) can be used as little interaction with SACT
- Direct oral anticoagulants (DOACs such as apixaban and rivaroxaban) are licensed but beware of interactions with many tyrosine kinase inhibitors and other SACT.
- Many clinicians will prefer LMWH if their patient is on SACT with a risk of bone marrow toxicity, as LMWH can be reversed more easily in case of bleeding

How to:

TREAT once a positive diagnosis has been made:

- ❑ LMWH or DOAC for at least 6 months
- ❑ Strongly prefer LMWH / DOAC to warfarin
- ❑ Check drug-drug interactions
- ❑ Caution in GI / GU / mucosal disease
- ❑ DOACs, in particular rivaroxaban, associated with higher risk of GI bleed
- ❑ Caution in brain tumours (check if haemorrhagic)

INITIATE & MANAGE DOAC (or warfarin) therapy, including on discharge:

- ❑ Dose reduce LMWH by one band after 1 month
- ❑ Consider long-term rivaroxaban / apixaban / LMWH to prevent recurrence if metastatic disease
- ❑ Consider psychosocial / financial impact of long-term anticoagulation (e.g. district nurse visits, psychological effect of easy bruising, and sharps boxes for LMWH)
- ❑ Remember to appropriately withhold AND RESTART anticoagulants before and after interventional procedures

Management of recurrent VTE

- Treatment compliance
- Heparin-induced thrombocytopenia
- Mechanical compression resulting from malignancy
- Alternate anticoagulant regimen
- Increase the dose of LMWH
- Add a vena cava filter to LMWH
- In patients for whom standard doses of LMWH fail, higher doses should be considered and are generally well tolerated in those without an increased risk of bleeding.

How to manage over-anticoagulated patients and reverse their effect.

(and how this differs with DOACs)

- Major haemorrhage protocol if severe or life-threatening!
- Minor bleed: Stop warfarin, give 5-10mg Vitamin K by slow i.v. injection. Unexpected bleeding in therapeutic range should be investigated as to possible underlying cause e.g. GI, renal or GU pathology.
- Major bleed: Stop warfarin, give 5-10mg Vitamin K by slow i.v. injection, & infuse 15ml/kg Fresh Frozen Plasma (FFP).
- Protamine sulphate is a licensed reversal agent for LMWH
- **No approved reversal agent for DOACS**

Superficial thrombophlebitis

- Tenderness and swelling relating to a superficial vein (e.g. varicosity)
- Can be associated with a cannulation site
- Not life or limb threatening
- Usually dissipates without treatment
- Try not to give antibiotics (rule out cellulitis)
- Anticoagulants usually not required but check with doppler US to ensure not DVT if not clinically apparent
- Very small chance of embolising to a deep vein

Central venous catheter (CVC) – associated venous thromboembolism

- Up to 5% risk of CVC-associated VTE in asymptomatic cancer patients
- More than x2 risk with PICC line than with other CVC
- If unable to flush/bleed, check device placement (usually CXR)
- If confirmed to be in place, consider thrombolytic agent (eg urokinase or tenecteplase)
- If unable to dislodge, consider removal of the CVC
- Consider anticoagulation for a period of at least 3 months following device removal
- No recommendation for routine outpatient thromboprophylaxis

The Christie policy

NHS
The Christie
NHS Foundation Trust

ANTICOAGULANT THERAPY MANAGEMENT POLICY

Covering Venous Thromboembolism (VTE) prophylaxis and treatment, Heparin and Warfarin

Intranet → Document database → Emergency documents

Telephone/bleep the on call medical oncology (#12138) or clinical oncology registrar (via Christie switchboard) for a discussion if uncertain regarding management of cancer-associated VTE if day time
Telephone/bleep the on call oncology registrar (#12222) or go through Christie switchboard if night time
Discussion with local acute oncology team
Discussion with local haematology team
British National Formulary (BNF)

Mental Health and Trauma-Informed Care in Acute Oncology Settings

PATIENT INFORMATION LINK:

Validated 24/03/21– Padraig.McDonnell@gmmh.nhs.uk

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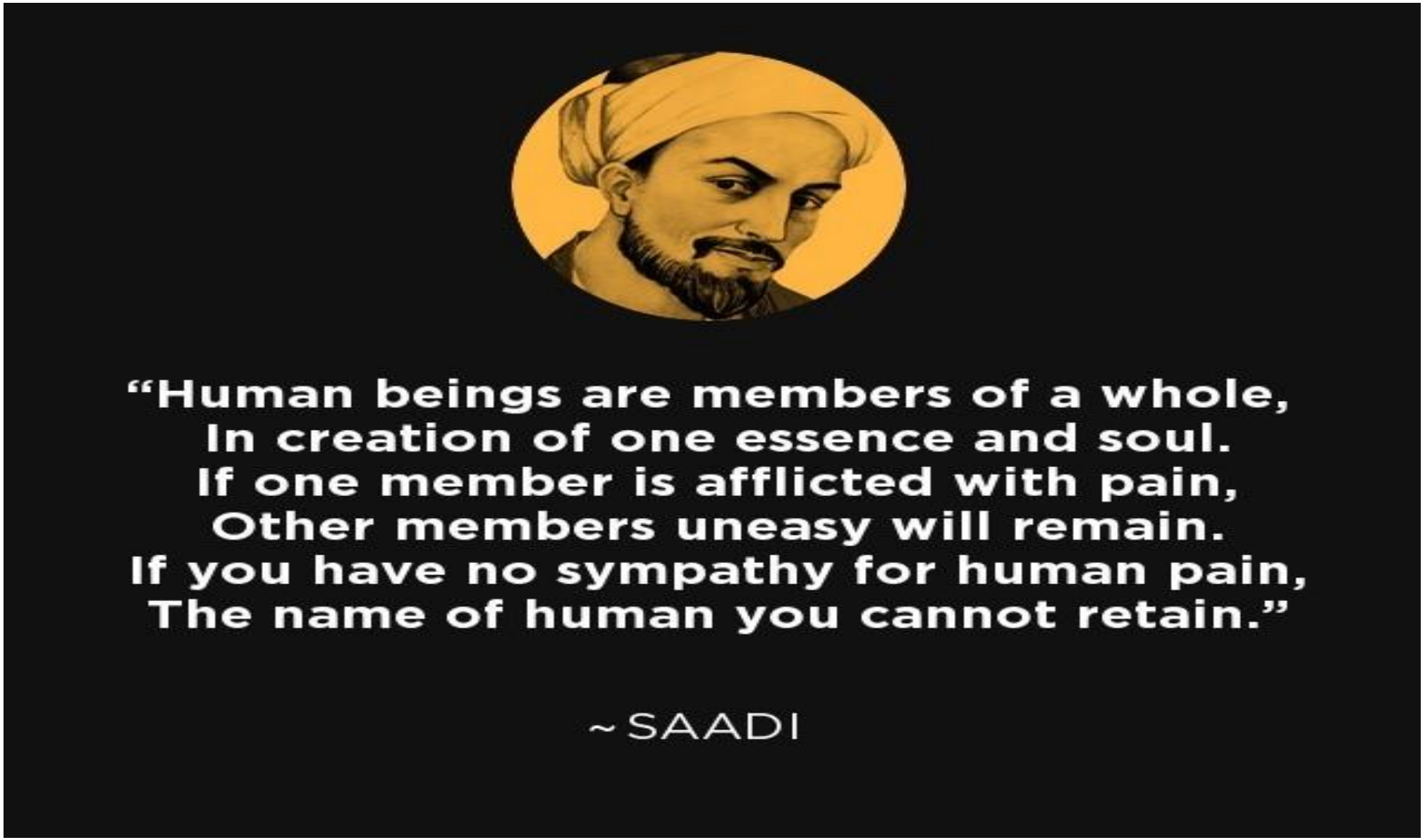

“Human beings are members of a whole,
In creation of one essence and soul.
If one member is afflicted with pain,
Other members uneasy will remain.
If you have no sympathy for human pain,
The name of human you cannot retain.”
~SAADI

Why is trauma-informed care important?

Opening Doors: Trauma Informed Practice for the Workforce
Please make the time to view this 9 minute powerful video.

Broad Definitions of Trauma:

- Too much, too quick, too soon
- Any event that is both overwhelming and inescapable
- An inescapably stressful event that overwhelms peoples coping mechanisms

Why Past Trauma Matters in Healthcare Settings (including AO):

- ❑ Trauma & abuse have often been perpetuated by caregivers and people in positions of power and authority (e.g. parents, adult family members, teachers, older peers, the government, majority groups).
- ❑ When people are admitted to hospital **WE** become the caregivers and the people in positions of power and authority
- ❑ Because of their past experiences, patients may **EXPECT** us to be abusive, dismissive, neglectful, untrustworthy, rejecting etc…
- ❑ This expectation will make people more sensitive to even very subtle signs or behaviours that indicate this may be happening (e.g. when we are late or rushed, or administer painful / unpleasant / intrusive procedures), and they will interpret what we do through the lens of their past trauma.
- ❑ What we see in AO services can be people responding to us in “survival mode” (or doing what they need to do to cope).
- ❑ We may also, as professionals, have **OUR OWN EXPERIENCES** of past or current trauma.

Adverse Childhood Experience Study

Over 17000 adults were surveyed: With 10 types of adverse childhood experiences identified as:

Some key findings: People with ACE exposure are:

- ❑ 2 x more likely to develop **DEPRESSION**
- ❑ 3 x more likely to develop **ANXIETY DISORDERS**
- ❑ 4 or more ACE increases the levels of **LUNG** and **LIVER** disease
- ❑ People with 6+ ACE's **can die 20 years earlier** than those who have none.
- ❑ Long term impacts are found such as creating a sense of helplessness, brain wired to expect danger, increases stress hormones flowing through the body, creates relationship problems

4 key tips in AO:

1. See the 'whole' person, not just their disease, when assessing
2. Past childhood trauma can cause neurological damage that affects how survivors respond in the present (e.g. reactions such as silence/not engaging, withdrawn, appearing to be angry/tense, rejecting support)
3. Communicating openly, honestly and with compassion can help foster a positive experience and deliver on Trauma-Informed Care.
4. Establish whether additional support e.g. from Mental Health Liaison Team or Palliative/Supportive Care Team would be beneficial

To screen for psychological distress as a busy AO clinician, consider using HNA/IPOS as high level holistic tools (if appropriate). Additional screening tools exist e.g. HADS/PHQ9/GAD7/PCL5 but should only be used by appropriately qualified/experienced staff. Be aware of how illness/treatment + associated side effects (e.g. poor sleep) affect scores.

Trauma Informed Care (TIC)

It isn't about what's wrong with a person. It's about what happened / is happening to a person:

- If staff are not empowered to be able to provide trauma informed services, they may unintentionally do more harm to patients and families e.g. re-traumatisation.
- AO is inevitably going to encounter patients/families at their most terrified or vulnerable (with or without significant past traumas). Environments where staff encounter these people (e.g. A&E or AMU) are often challenging / busy / chaotic which can enhance the distress that individuals already feel.
- AO staff can create an environment (e.g. creating privacy, giving time to explore, asking colleagues not to interrupt) that enables patients / family members to feel safer / calmer and more able to discuss what is happening to them / how they are feeling / how the team can help.

TIC is a strengths-based framework, which recognises the complex nature and effects of trauma and promotes resilience and healing:
5 KEY PRINCIPALS

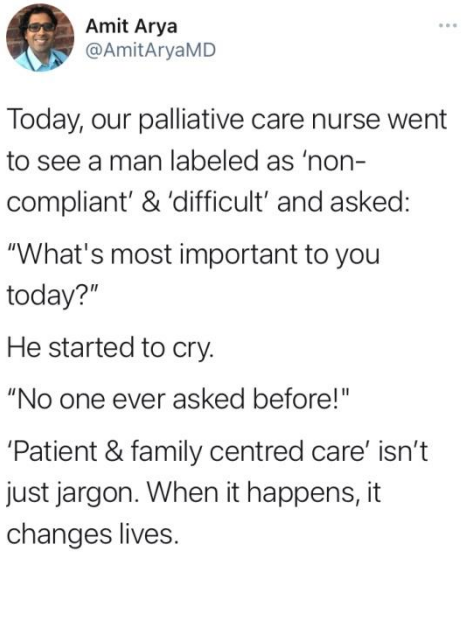
SAFETY – Creating areas that are calm & comfortable

TRUST – Providing clear and consistent information

CHOICE – Providing an individual options in their treatment

COLLABORATION – Maximising collaboration among health care staff, patients, carers in treatment planning.

EMPOWERMENT – Noticing capabilities in an individual



All staff should have a basic realisation of trauma, and how it can affect individuals, families and communities

REALISE

RESIST

Re-traumatisation. Organisations may compound trauma, unintentionally.

People within organisations should be able to recognise the signs and symptoms of trauma.

RECOGNISE

RESPOND

Programmes, organisations and communities respond by practising a trauma informed approach.

Trauma-Informed Practice

Frightened / worried / traumatised patients and family members will often process and ‘experience’ **Non-Verbal Communication** more effectively than any verbal information presented to them

Communication Refresher

Things to say and do

- Try to find a quiet place to talk, and minimize outside distractions
- Respect privacy and keep material confidential if appropriate
- Stay near the person but keep an appropriate distance depending on their age, gender and culture
- Let them know you are listening; for example, nod your head or say “hmmmm…”
- Be patient and calm
- Provide factual information **if** you have it. Be honest about what you know and don’t know. “I don’t know, but I will try to find out about that for you.”
- Give information in a way the person can understand – keep it simple.
- Acknowledge how they are feeling and anything they tell you about (e.g. what is going on at home). Offer an empathic statement reflecting back a word used or something expressed by the person.
- Acknowledge the person’s strengths and how they are coping as best they can
- Allow for silence.

Things to NOT say and do

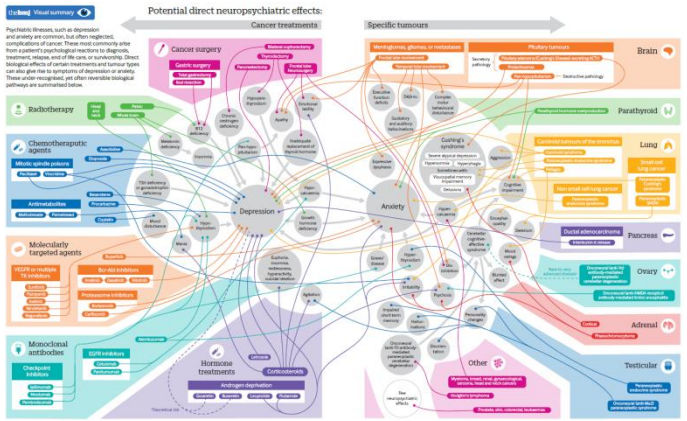
- Don’t pressure someone to tell their story
- Don’t interrupt or rush someone’s story (for example, don’t look at your watch or speak too rapidly).
- Don’t touch the person if you’re not sure it is appropriate to do so (or always ask permission if carrying out a physical examination).
- Don’t judge what they have or haven’t done, or how they are feeling. Don’t say: “You shouldn’t feel that way,” or “You should feel lucky you’re being treated.”
- Don’t make up things you don’t know or use terms that are too technical.
- Don’t tell them someone else’s story and don’t talk about your own troubles.
- Don’t give false promises or false reassurances.
- Don’t think and act as if you must solve all the person’s problems for them.
- Don’t take away the person’s strength and sense of being able to care for themselves.

Cancer & Neuropsychiatric effects

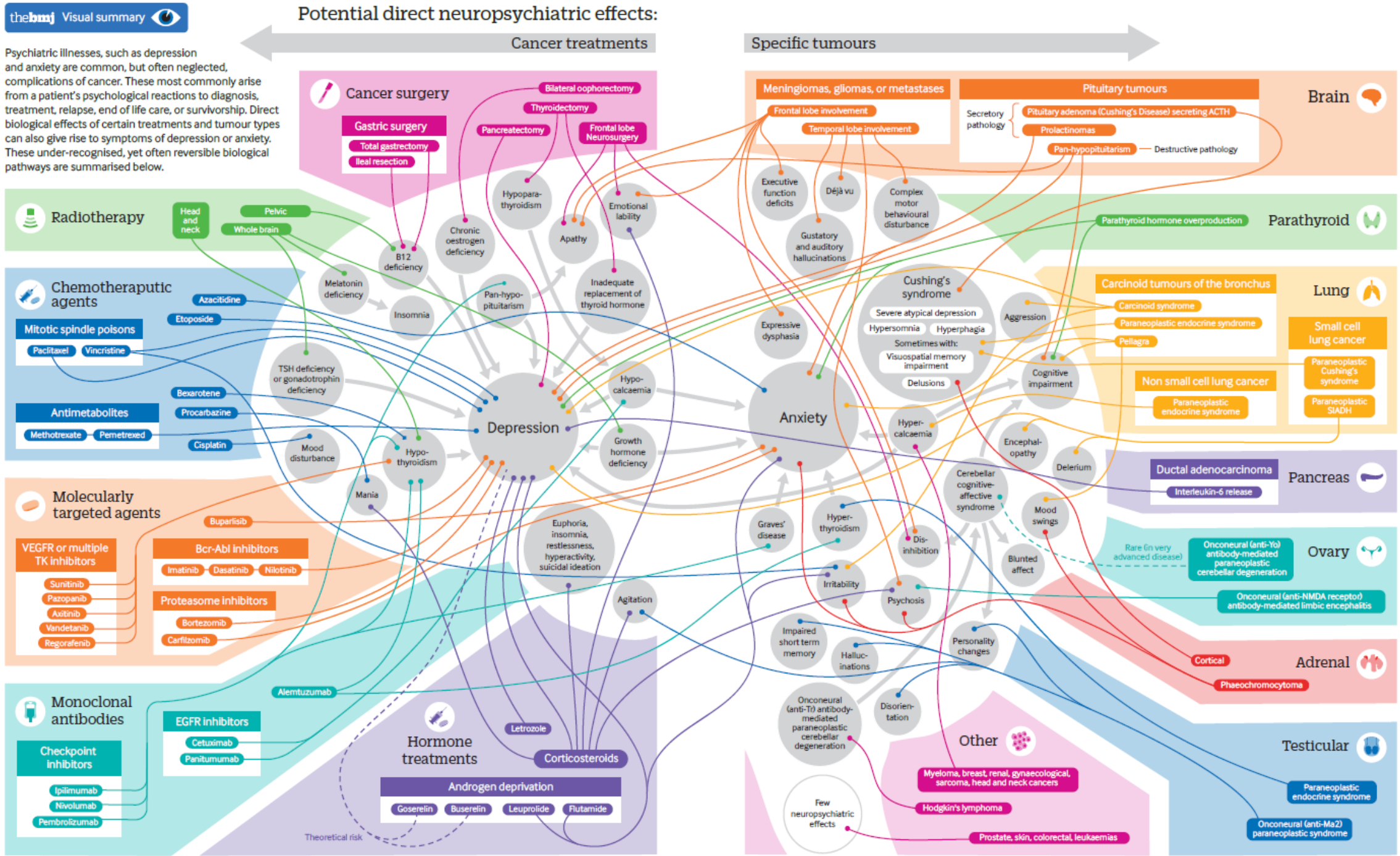
What you need to know:

- ❑ Depression affects up to 20%, and anxiety 10%, of patients with cancer, compared with figures of 5% and 7% for past-year prevalence in the general population.
- ❑ Poor recognition of depression and anxiety is associated with reduced quality of life and survival.
- ❑ Some cancers, such as pancreatic and lung, can release chemicals that are thought to cause depression, and certain cancer treatments, such as chemotherapy and corticosteroids, are associated with depression.

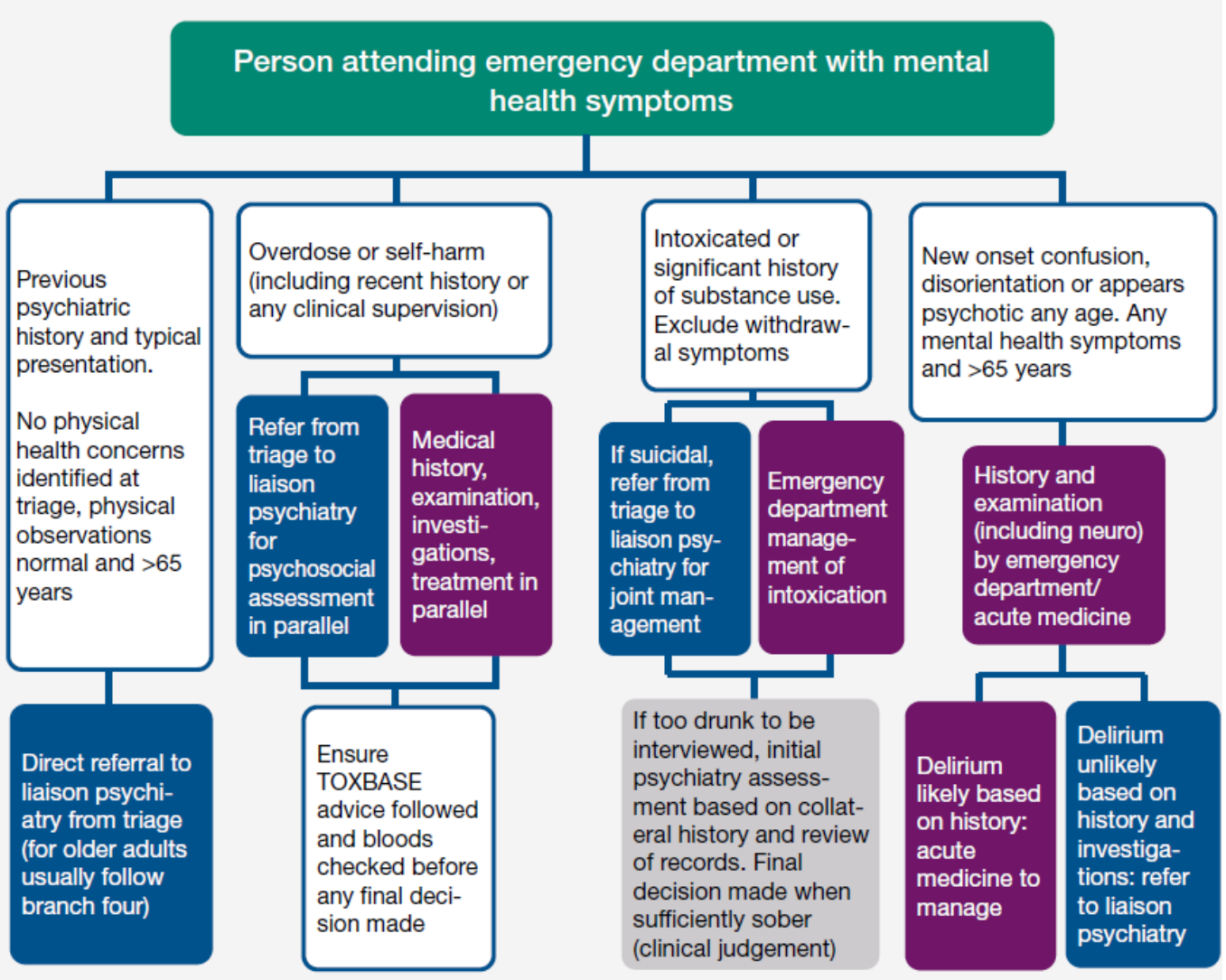
Shows the complex interactions of treatments and tumour sites and how they may potentially affect mood/anxiety. Please click on the diagram for the full link.



- ❑ Depression in cancer patients receiving end-of-life care is no more prevalent than in patients living actively with cancer.
- ❑ Be aware that antidepressants can worsen existing cancer symptoms and interact with chemotherapy agents: sertraline and citalopram tend to have the least interactions and are generally well tolerated as first line agents.


thebmj Visual summary
Potential direct neuropsychiatric effects:
Psychiatric illnesses, such as depression and anxiety are common, but often neglected, complications of cancer. These most commonly arise from a patient's psychological reactions to diagnosis, treatment, relapse, end of life care, or survivorship. Direct biological effects of certain treatments and tumour types can also give rise to symptoms of depression or anxiety. These under-recognised, yet often reversible biological pathways are summarised below.
Cancer treatments
Specific tumours
Cancer surgery
Gastric surgery
Total gastrectomy
Ileal resection
Bilateral oophorectomy
Thyroidectomy
Pancreatectomy
Frontal lobe Neurosurgery
Radiotherapy
Head and neck
Pelvic
Whole brain
Chemotherapeutic agents
Mitotic spindle poisons
Paclitaxel
Vincristine
Azacitidine
Etoposide
Antimetabolites
Methotrexate
Pemetrexed
Bexarotene
Procarbazine
Cisplatin
Molecularly targeted agents
VEGFR or multiple TK inhibitors
Sunitinib
Pazopanib
Axitinib
Vandetanib
Regorafenib
Buparlisib
Bcr-Abl inhibitors
Imatinib
Dasatinib
Nilotinib
Proteasome inhibitors
Bortezomib
Carfilzomib
Monoclonal antibodies
Checkpoint inhibitors
Ipilimumab
Nivolumab
Pembrolizumab
EGFR inhibitors
Cetuximab
Panitumumab
Alemtuzumab
Hormone treatments
Letrozole
Corticosteroids
Androgen deprivation
Goserelin
Buserelin
Leuprolide
Flutamide
Theoretical risk
Depression
Anxiety
Mood disturbance
Insomnia
Mania
Agitation
Euphoria, insomnia, restlessness, hyperactivity, suicidal ideation
Irritability
Psychosis
Impaired short term memory
Hallucinations
Disorientation
Personality changes
Dis-inhibition
Blunted affect
Mood swings
Cognitive impairment
Aggression
Delirium
Encephalopathy
Cerebellar cognitive-affective syndrome
Expressive dysphasia
Executive function deficits
Déjà vu
Complex motor behavioural disturbance
Gustatory and auditory hallucinations
Emotional lability
Apathy
Hypo-thyroidism
Hyper-thyroidism
Graves' disease
Hypo-calcaemia
Hyper-calcaemia
Growth hormone deficiency
Inadequate replacement of thyroid hormone
Pan-hypo-pituitarism
Hypopara-thyroidism
Chronic oestrogen deficiency
B12 deficiency
Melatonin deficiency
TSH deficiency or gonadotrophin deficiency
Cushing's syndrome
Severe atypical depression
Hypersomnia
Hyperphagia
Sometimes with:
Visuospatial memory impairment
Delusions
Meningiomas, gliomas, or metastases
Frontal lobe involvement
Temporal lobe involvement
Pituitary tumours
Secretory pathology
Pituitary adenoma (Cushing's Disease) secreting ACTH
Prolactinomas
Pan-hypopituitarism
Destructive pathology
Brain
Parathyroid hormone overproduction
Parathyroid
Carcinoid tumours of the bronchus
Carcinoid syndrome
Paraneoplastic endocrine syndrome
Pellagra
Lung
Small cell lung cancer
Paraneoplastic Cushing's syndrome
Paraneoplastic SIADH
Non small cell lung cancer
Paraneoplastic endocrine syndrome
Ductal adenocarcinoma
Interleukin-6 release
Pancreas
Rare (in very advanced disease)
Onconeural (anti-Yo) antibody-mediated paraneoplastic cerebellar degeneration
Ovary
Onconeural (anti-NMDA receptor) antibody-mediated limbic encephalitis
Cortical
Phaeochromocytoma
Adrenal
Onconeural (anti-Tr) antibody-mediated paraneoplastic cerebellar degeneration
Other
Myeloma, breast, renal, gynaecological, sarcoma, head and neck cancers
Hodgkin's lymphoma
Prostate, skin, colorectal, leukaemias
Few neuropsychiatric effects
Testicular
Paraneoplastic endocrine syndrome
Onconeural (anti-Ma2) paraneoplastic syndrome

Mental Health Liaison Services



Working together to help patients with mental health needs in acute hospitals

In acute hospitals in the UK, the purpose of assistance from liaison psychiatry includes:

- support to patients, families and treating medical teams
- advice about clinical care or diagnosis in hospital
- advice and support on mental health and mental capacity law
- assessment of ongoing mental health needs and arrangement of suitable aftercare.

KEY PRINCIPLES

1. Dignity and equality of access

Access to mental health care should follow the same principles as access to any other hospital specialty and be guided at all times by the needs of the patient.

2. Working side by side

Joint ownership: Patients who are being helped by mental health teams while receiving concurrent medical care must remain under joint care.

3. Clarity of communication

Referrals should be made to liaison psychiatry as soon as it becomes clear that a patient has a mental health need which requires specialist assistance. The purpose of referral should be made as clear as possible at the outset and include a brief narrative handover including the patient's current medical needs, mental health concerns, planned investigations and treatment.

Directory of emotional / psychological support for PaBC

Full directory: https://gmcancerorguk.files.wordpress.com/2019/06/directory-of-services-gm-cancer-psychological-mental-health-apr-2019-v3.pdf

Greater Manchester Cancer

Patient centred communications

THE MAGUIRE COMMUNICATION SKILLS TRAINING UNIT ®
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Principles underpinning patient-centred communication

Communication has been shown to influence patients' psychological adjustment, coping, satisfaction, adherence to treatment and wellbeing.

Concerns

- number and severity of concerns linked to level of emotional distress
- emotional distress impedes hearing and processing information
- empathic acknowledgement of a concern reduces distress levels

Information

- too much or too little information has a negative impact on satisfaction and well-being
- patients who felt all their questions had been answered report illness as having less impact on their lives

Decision-making

- participation in decision-making associated with improved satisfaction and health outcomes

The principle underpinning all models of communication is "Gather and Acknowledge before Give"

This principle is often counter-intuitive for health care professionals because in our desire to be helpful and relieve suffering, the tendency is to move quickly to reassure and problem solve before we have fully heard or understood all the person's concerns.

It is important as far as possible to gather **all** before giving so that the person is more able to hear and absorb any information given. This is because any information-giving inhibits the patient from sharing further concerns.

Patients who are preoccupied with their concerns and consequently feeling anxious cannot hear and process the information they are being given, even where the information is relevant.

It is also vital to fully **acknowledge** what we are hearing throughout. This enables us to check and confirm that we have fully understood the concerns, questions and emotions before attempting to provide support and information. The mere expression of a concern is of itself therapeutic. Verbally acknowledging the patient's concerns allow them to feel heard, respected.

Acknowledging the patient's emotions brings down the level of anxiety and supports cognitive processing.
Even when the purpose of the consultation is specifically to deliver information, it is still important to gather the person's perceptions, i.e. concerns, thoughts and feelings ***first*** because this gives us a starting point to tailor the information we give to the needs of that individual.

Evidence underpinning a "gather acknowledge give" consultation structures

- Even experienced physicians have a tendency to redirect the interview to their own agenda before giving the patient time to fully express their first concern (average time given to patients was 23.1 seconds). This early interruption, directing the patient back onto the doctor's agenda, was associated with gathering fewer concerns, late arising concerns and missed opportunities (cues) Marvel et al (1999)
- Consultations structured in this way (focussed on patient agenda) are 10% -12% shorter. (Levinson et al 2000, Butow et al 2002)
- Eliciting the patient's concerns and expectations is crucial to the decision making process (Ford et al 2003)
- Giving any information can inhibit the disclosure of concerns (Zimmerman et al 2003)
- Responding to emotions increases the patient's ability to recall information, make decisions and decreases anxiety (Smith et al, 2011, Adams et al 2012, Sep et al 2013)

SPIKES 'plus'

Maguire Communication Skills Training Unit, (adapted from Baile and Buckman 2000)

SPIKES Plus is a consultation structure that can be applied to any consultation or conversation with a patient and/ or relative or carer. The original SPIKES model (Baile & Buckman et al 2000) was developed for giving bad news and is useful in any situation in which the health professional may have to introduce new information.

ANY information could be upsetting and therefore bad news from the recipient's point of view.

We have added to the model to highlight the importance of working with an individual's cues to enable movement through the model at their pace. i.e. a pace at which they are able to absorb and process information and engage more actively in decision-making. We also stress the importance of empathy throughout and not just in the "E" section.

Working with patient cues

It is often the case that people do not disclose concerns explicitly but test the water by hinting in a verbal or non-verbal way that all is not well. These hints are referred to as cues.

> ***cue:*** "a clear expression or hint of **negative emotion** (verbal or non-verbal) which would need clarification from the health care provider to detect the presence of an underlying concern"

There is much research evidence to support that interviews which are cue based are more effective. More concerns are disclosed by the individual and they are more likely to feel understood, have better information recall and report being more satisfied with their consultations. Working with cues involves verbally acknowledging the implied or stated emotion then pausing to allow the person to expand or elaborate or asking an exploratory question.

EXAMPLES:

Acknowledgement through **reflection**:- "You say you were worried and were not sleeping."

Acknowledging with **empathy** -
"It sounds like that has been awful for you".

Acknowledgement and **exploration** using reflection and an open focussed question. -
"You said you've been worried… <pause> ... what has been on your mind?"

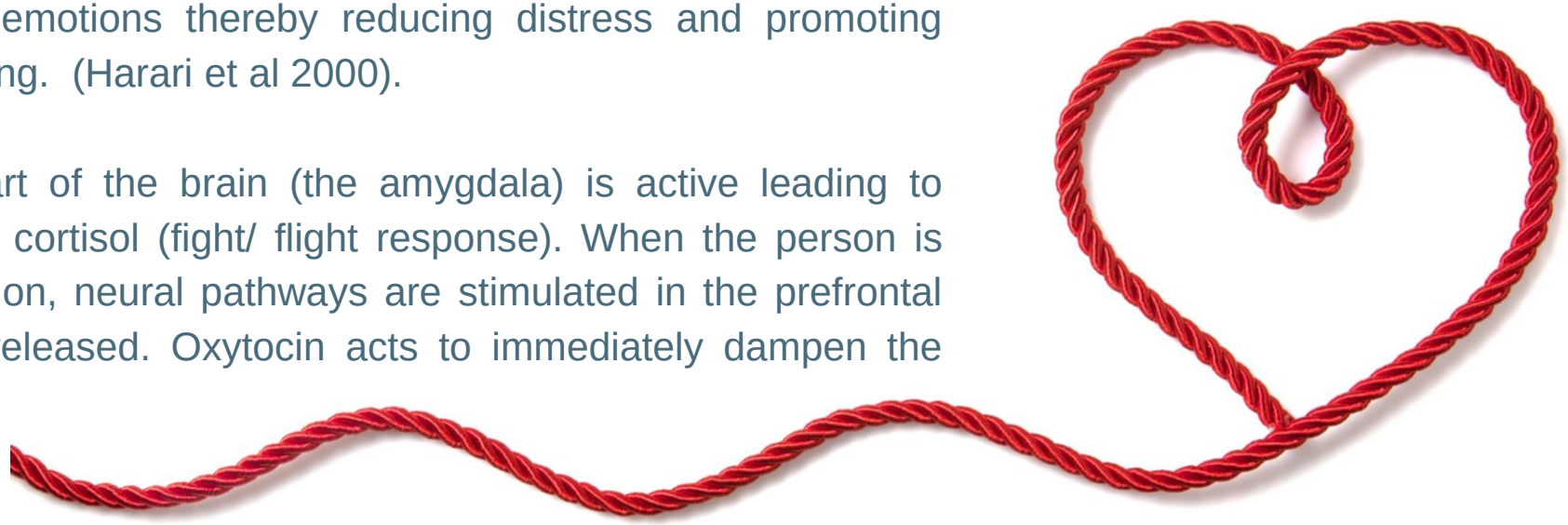
Demonstrating empathy

Empathy is an attempt to acknowledge the emotional state of another person from ‘their’ perception. It is a powerful skill that seeks to fully recognise and explore the impact of the person’s experience. Being empathic requires the interviewer to ***verbally*** acknowledge the person’s emotional/psychological experience and check the impact. Authentic, verbal empathy can give the receiver the powerful sense the listener has a genuine appreciation of their experience as well as being willing to be alongside them.

Empathy involves ***verbally*** acknowledging the person’s emotional/psychological experience and checking this out.

Empathic acknowledgement not only builds rapport and understanding, it also plays a significant role in dampening strong emotions thereby reducing distress and promoting cognitive processing and decision making. (Harari et al 2000).

In times of distress the emotional part of the brain (the amygdala) is active leading to increased production of adrenalin and cortisol (fight/ flight response). When the person is able to recognise and name the emotion, neural pathways are stimulated in the prefrontal cortex and the hormone oxytocin is released. Oxytocin acts to immediately dampen the effect of adrenaline and cortisol

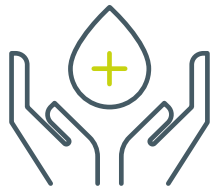


Breaking Bad News using SPIKES ‘plus’ as a framework

SETTING:

In SPIKES ‘plus’ we emphasise the importance of working with cues and empathy throughout the consultation. Notice how the person looks and sounds and say what you are seeing or hearing. Acknowledging emotions from the start helps build rapport and gives the patient a clear message that you are concerned for them as a whole person. Picking up cues this early often leads naturally to perception.

Example:



HCP: “good morning Mrs Jones, my name is ….etc. ***You’re looking worried*** …Pause”

Mrs Jones: “well ***yes I am***, they said I needed more tests and ***I haven’t been able to sleep since”***

Perception

There is often a tendency to rush this step by recapping and seeking confirmation “so Mrs Jones, when you saw my colleague ... He suggested you needed more tests”. Then move straight to giving the information “well I’m very sorry but what the tests have shown is...” Information given in this way can ***feel*** brutal however kindly it is said. Working with the person’s understanding and emotions helps us establish a starting point from which the “bad news” can either be gently confirmed or sensitively broached.

HCP: *so this morning we are going to go through a few things, but first it would really help if I could get an idea of where you are up to.* ***You mentioned more tests and that you hadn’t been able to sleep for worrying… is that right?***

Mrs Jones*: I’ve* ***been beside myself*** *ever since they said I needed the CT scan*

HCP: ***I can hear how worried you are****,* ***what’s been going through your mind?***

Mrs Jones: *Well your mind goes to the* ***worst possibility*** *doesn’t it, things like* ***cancer****.*

Now we know that Mrs Jones is concerned about the possibility of a cancer this gives us a starting point for breaking the news. It might be tempting at this stage to move to the information-giving. However, it is worth summarising and screening for more concerns before moving forwards. If Mrs Jones remains pre-occupied with other as yet undisclosed concerns she may not be able to hear and process information so well.

HCP: *So the tests and especially the CT scan have made you think it might be something serious like cancer*
Mrs Jones*: Yes*
HCP*: And that feels a very frightening possibility for you*
Mrs Jones: *Exactly*
HCP: *OK we can talk about the results, but before we move on is anything else worrying you*
Mrs Jones: *no just what you’re going to tell me*

Now we have established Mrs Jones understanding, concerns and information needs we can move to the next part of the consultation.

Invitation, Knowledge, Emotion

Invitation:
Seek permission to give information. This signposts moving on and allows the patient to prepare. Here we can still be observing and listening for cues and check these out for instance if the patient agrees that they are ready for information but looks reluctant or unsure.
The next two steps (knowledge and emotion) involve a circular process of "**chunking"** and "**checking"**

Knowledge
It is important to use warning shots, even where the news is expected. Prefacing information with words such as "unfortunately"..."sadly".., "I'm afraid to say"...followed by a pause helps the person to absorb and adjust to the information. The more the information is likely to shock, the more warning shots may be needed.

HCP: *You have said that you are really worried that it might be cancer… PAUSE… I'm really sorry to have to confirm this... but the tests have shown that it is*

Emotion
Be aware that **any new information** may have an emotional impact and either **confirm existing concerns or provoke new concerns.** It is really important to **resist offering immediate reassurance.** Instead **PAUSE**.

Say what you see or ask the person for their thoughts and/or feelings**.** Continuing to work with the cues by empathising and gathering any new concerns in the information giving phase will help to prevent the patient from becoming overloaded. It allows them to process and react to each piece of information before moving on to the next.

Give further information **in small chunks** and if possible link to the concerns the person has disclosed. People in a heightened emotional state find it even more difficult to hear and absorb information. Small chunks make it more manageable -the smaller the better. Be honest and clear, using language that will be meaningful to the person.

acknowledging with empathy: *"I can see that has come as a huge blow"*

checking for understanding: *"How does that sound/ What are your thoughts about that?"*

checking for emotional impact AND understanding: *"How does that leave you feeling?"*

Resist going into further detail *unless* it is requested or agreed to. **Seek permission** to continue

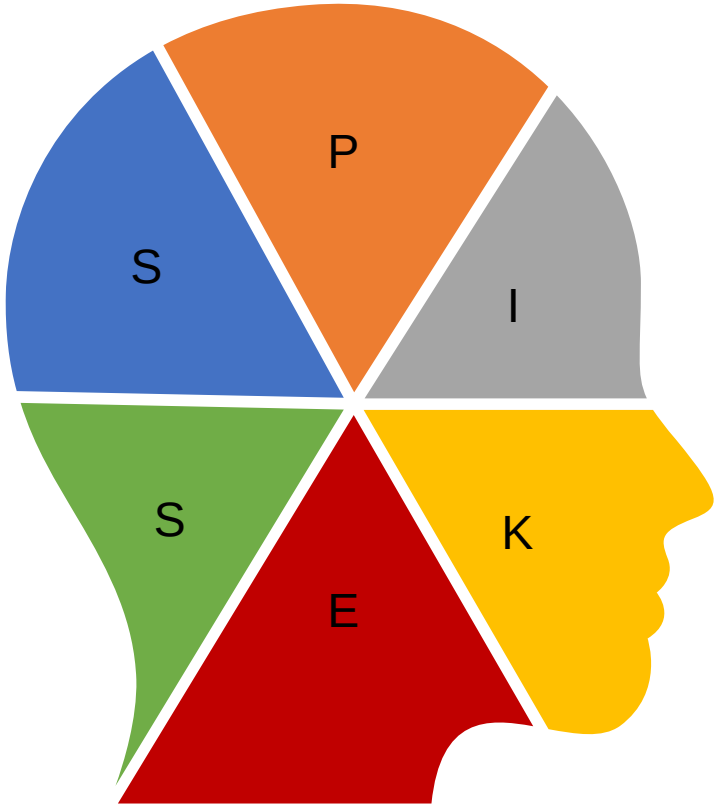
"Shall I go on?"... PAUSE "Is it okay to continue?"... PAUSE

Strategy and Summary

If the person has been able to assimilate the information they need, in relation to their concerns as well as the “medical facts” they will be much better prepared to participate in decisions about treatment plans, choices, pros & cons etc. and to hear further advice and information. Again listening and observing for cues in this phase of the interview can help uncover any remaining concerns or areas of uncertainty

HCP: *You looked very worried when we were talking about next steps*
Mrs Jones: Well yes, it’s such a lot to take in

- ✓ **Ending the interaction**
- ✓ **Summarise all** that has been discussed (concerns and options)
- ✓ **Screen again** for any undisclosed concerns or questions.
- ✓ **Next steps –** provide supporting information
- ✓ **Further information and training** visit www.christie.nhs.uk/Maguire



Prehab4Cancer

PATIENT INFORMATION LINK: https://prehab4cancer.co.uk & https://safefit.nhs.uk

Validated 04 December 2020 – Zoe Merchant- zoe.merchant@nhs.net

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Exercise: before, during & after treatment

Why is it important?

- Better and quicker recovery
- Reduced treatment-related complications
- Improved adherence to and completion of treatment
- Improved Quality of Life
- Transition to lifelong exercise: prevention of recurrence and other LT conditions

"The gym gave me a **focus** and I felt **in control**"

Benefits

- Better response to treatment
- Quicker recovery
- Reduced anxiety and improved mood
- Improved energy levels
- General health improvement
- Improved patient experience
- Greater sense of control

What?

- Access specialist exercise advice via https://prehab4cancer.co.uk/exercise-2/
- Eligibility criteria for P4C: https://prehab4cancer.co.uk/who-is-it-for/
- P4C team is part of GM Active, covering 87 leisure and sports facilities across the region: patients can attend close to home
- Tailored exercise prescription for each patient, incorporating Re-HITT (aerobic) and resistance training.
- Delivered remotely during COVID19 pandemic

"I have really felt an **improvement** in my fitness"

Nutrition

Why is it important?

- Help patients combat symptoms caused by cancer and treatment including sarcopenia, weight loss and loss of appetite
- Eating well helps maintain energy
- Promotes faster recovery & better clinical outcomes

What?

- Visit: https://prehab4cancer.co.uk/nutrition-2/
- Regular nutritional screening (weight trends, BMI, handgrip, swallow issues)
- Clear flag system based on nutritional screening used by prehab specialists, referral back to clinical team if necessary
- Signposts to other useful resources, and literature

"It's **helping me** with my chemo, I come the day before chemo and **I feel better**"

"Surgeons said I had to get fitter and **put on weight**, or I would be dead, so it was a no brainer!"

Benefits

- Patients are provided with resources to help them optimise their own diet
- Any issues are spotted and promptly flagged via regular screening.

Wellbeing

For more information: https://prehab4cancer.co.uk/wellbeing-2/

Why is it important?

- Recognises many of the secondary mental health symptoms of cancer patients face – fatigue, mood disturbance, anxiety.
- Builds on widely understood principles around exercise positively contributing to the reduction of symptoms, particularly mental health.

What?

- Holistic interventions to improve the patients quality of life before, during and after treatment.
- Psychological support is delivered using the NICE recommended "stepped care model".
- Screening assessments using a range of measures – EQ5D, EIRTC, QL40C30, WHODAS, Self efficacy
- Specialists can signpost to local IAPT services or liaise with clinical teams if required.

Benefits

"When I've been feeling really low I can concentrate on my wellbeing at the gym – made me **feel better about myself."**

- To hear how patients benefit psychologically from engaging in prehabilitation and rehabilitation visit:
- https://prehab4cancer.co.uk/success-stories/

"Having the support of the instructors has been great. They have really helped me relax and **feel less stressed out"**

Q&A

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