INMO Professional

INMO
Irish Nurses and Midwives Organisation
Working Together

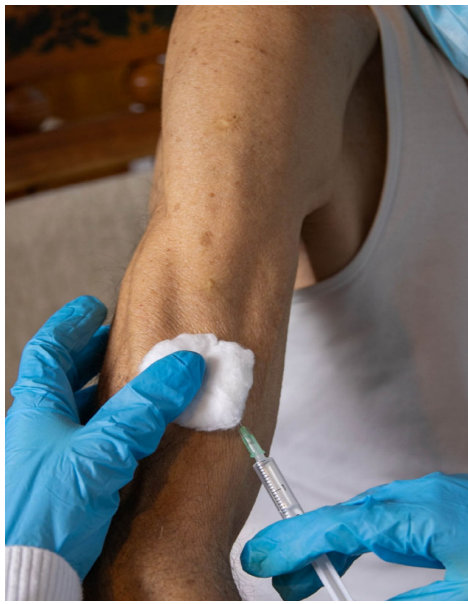
Community Intervention Teams National Section Seminar

Tuesday, 1 October 2024

The Richmond Education & Event Centre, Dublin

CONFERENCE PROCEEDINGS

4
CEUs



Community Intervention Team

1st October 2024

Name of presenter:

Ciara Parthiban

Title:

Early Discharge Supports with Community Intervention Team

Department:
Medical Directorate

Tallaght University Hospital | Ospidéal Ollscoile Thamhlachta

An Academic Partner of Trinity College Dublin

South Dublin Community Intervention Team

Background

- SVUH
- Agency- Emergency Department
- Short Stay Ward
- National Acute Medicine Programme (NAMP, 2010)

- Enhanced Community Care Programme (ECC, 2022)

South Dublin Community Intervention Team

Tallaght University Hospital

CNM 2 Liaison Role

- Raise the awareness of the Community Intervention Team in TUH
- Enhance the communication between the acute hospital and CIT services
- Ensure all healthcare staff can identify patients suitable for the CIT and assist with the referral process
- Establish pathways between the acute hospital and community services keeping the patient at the centre of care
- Establish data

Totals	2020	2021	2022	2023	2024
January	108	87	113	158	218
February	103	80	82	147	204
March	88	77	87	178	181
April	68	90	108	178	197
May	79	85	128	151	151
June	59	84	102	153	213
July	70	90	111	172	?
August	78	106	122	153	260
Sept	72	121	125	181	
October	70	117	135	222	
November	81	103	122	177	
December	76	107	144	212	

Tallaght University Hospital

Task orientated referrals

- PICC removal
- S/C injections
- Male/SPC out of hours re-catheterisation
- S/C fluid administration
- Phlebotomy
- Palliative care
- Evening support calls
- Medication management

Clinical pathways

- TWOC
- Virtual renal clinic
- INR monitoring
- Warfarin/clexane bridging
- COPD Outreach
- Pre-chemo clinic/Oncology care
- Indwelling pleural catheter
- IVABX *OPAT service
- U.K.O.N.S.** transferred to SVUH

South Dublin Community Intervention Team

Tallaght University Hospital

Case Study showcasing benefits of Virtual Renal Clinic

Domiciliary assessment to support a virtual clinic review

- Patient X is 74 years old and has chronic kidney disease at an advanced stage. She has had multiple hospital admissions to manage both her renal function and her fluid volume status
- In 2022- she was admitted on five different occasions for a total of 72 bed days. History of “DNA” to OPD appointments.

2022 - 72 bed days
V’s
2023 - 2 bed days
with the input of CIT

Outcome:

- In 2023, patient X has had just 1 presentation to the acute hospital for a total of 2 bed days to manage a low HB, the blood transfusion can only be managed in the acute hospital. Her care is managed by an alternating clinic/CIT visit model
- Her Renal Consultant reports: “patient is more engaged”, “she now asks questions about her medication”, “she has been engaging with her GP and has greater empowerment with her management”.

Benefits:

-No lengthy inpatient stays

-More engaged with her medication

-Managed more successfully at home

Tallaght University Hospital

Any Questions?

Oncology Update

By

Liz Meade RANP in Oncology

October 2024

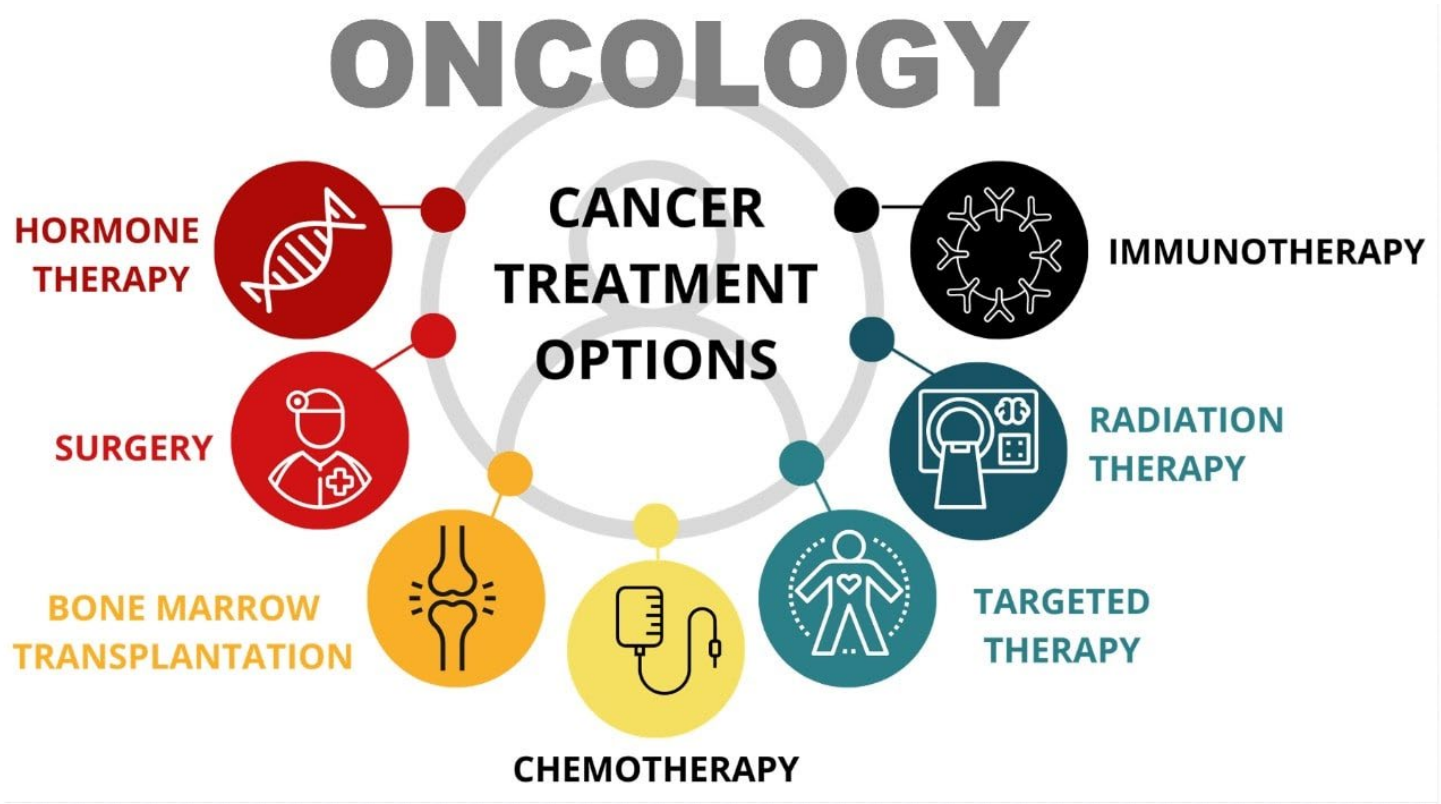
Format

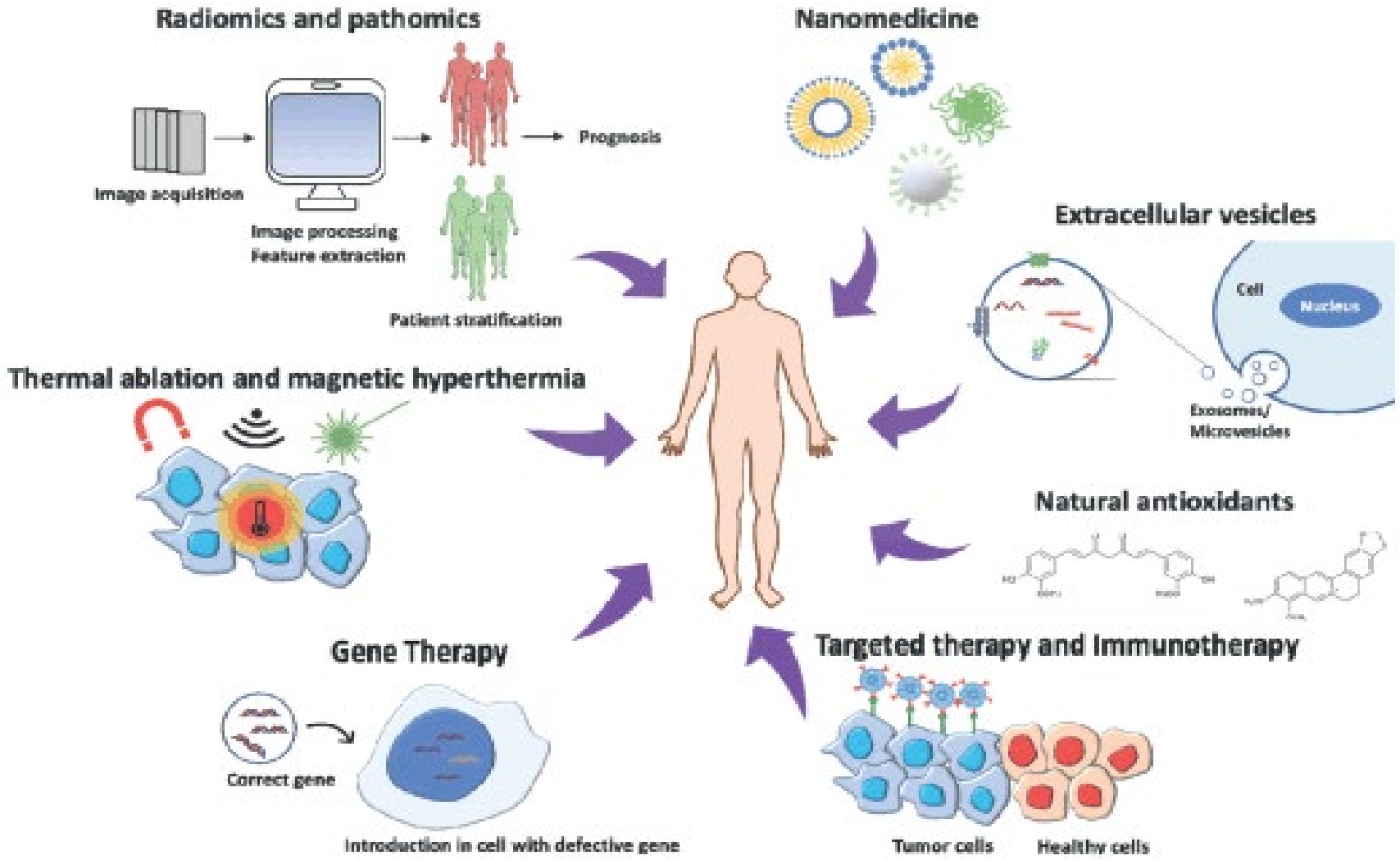
- Oncology Update
- CVADs
- Oncology Emergencies
- Immunotherapy

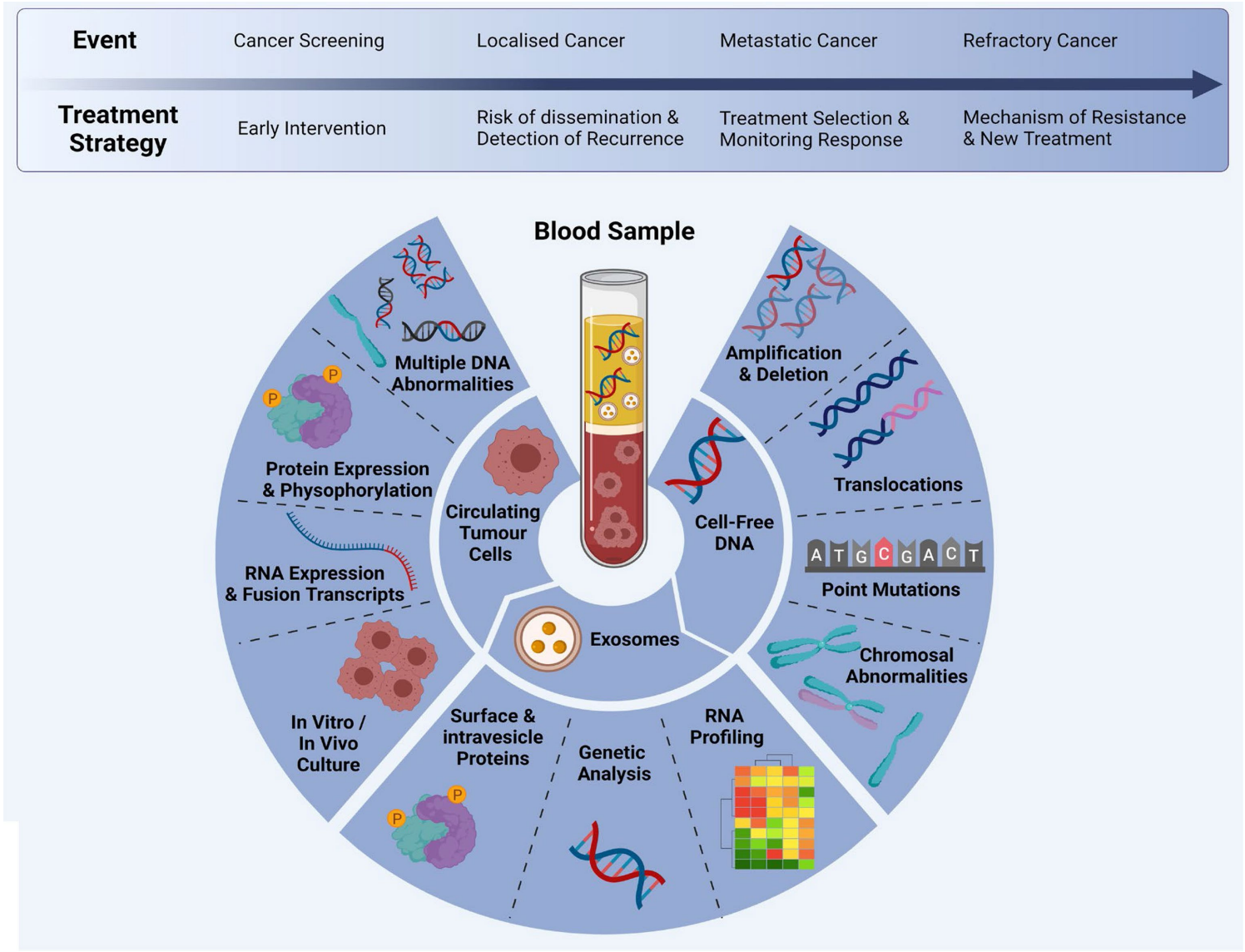
Introduction

- More than 24,000 invasive cancer cases (13,075 men, 11,349 women) are diagnosed in Ireland each year. This does not includes non-invasive cancers like non-melanoma skin cancers.
- The treatment of cancer is rapidly expanding and progressing with newer treatments.

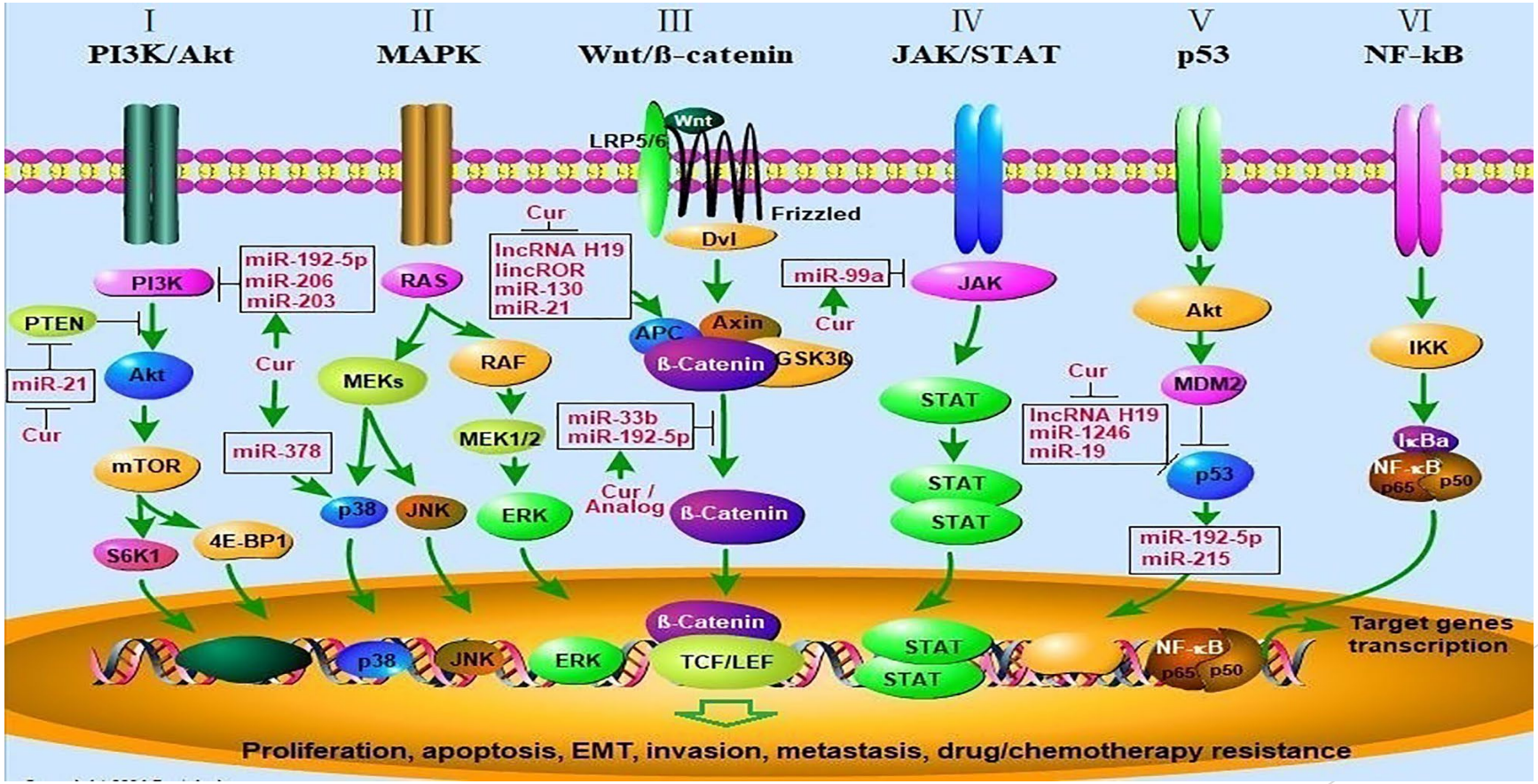
Oncology Treatments




Radiomics and pathomics
Image acquisition
Image processing
Feature extraction
Prognosis
Patient stratification
Nanomedicine
Extracellular vesicles
Cell
Nucleus
Exosomes/
Microvesicles
Thermal ablation and magnetic hyperthermia
Natural antioxidants
Gene Therapy
Correct gene
Introduction in cell with defective gene
Targeted therapy and Immunotherapy
Tumor cells
Healthy cells


Event
Cancer Screening
Localised Cancer
Metastatic Cancer
Refractory Cancer
Treatment Strategy
Early Intervention
Risk of dissemination & Detection of Recurrence
Treatment Selection & Monitoring Response
Mechanism of Resistance & New Treatment
Blood Sample
Multiple DNA Abnormalities
Protein Expression & Physophorylation
RNA Expression & Fusion Transcripts
In Vitro / In Vivo Culture
Circulating Tumour Cells
Surface & intravesicle Proteins
Exosomes
Genetic Analysis
Cell-Free DNA
RNA Profiling
Amplification & Deletion
Translocations
Point Mutations
Chromosal Abnormalities
P
A T G C G A C T

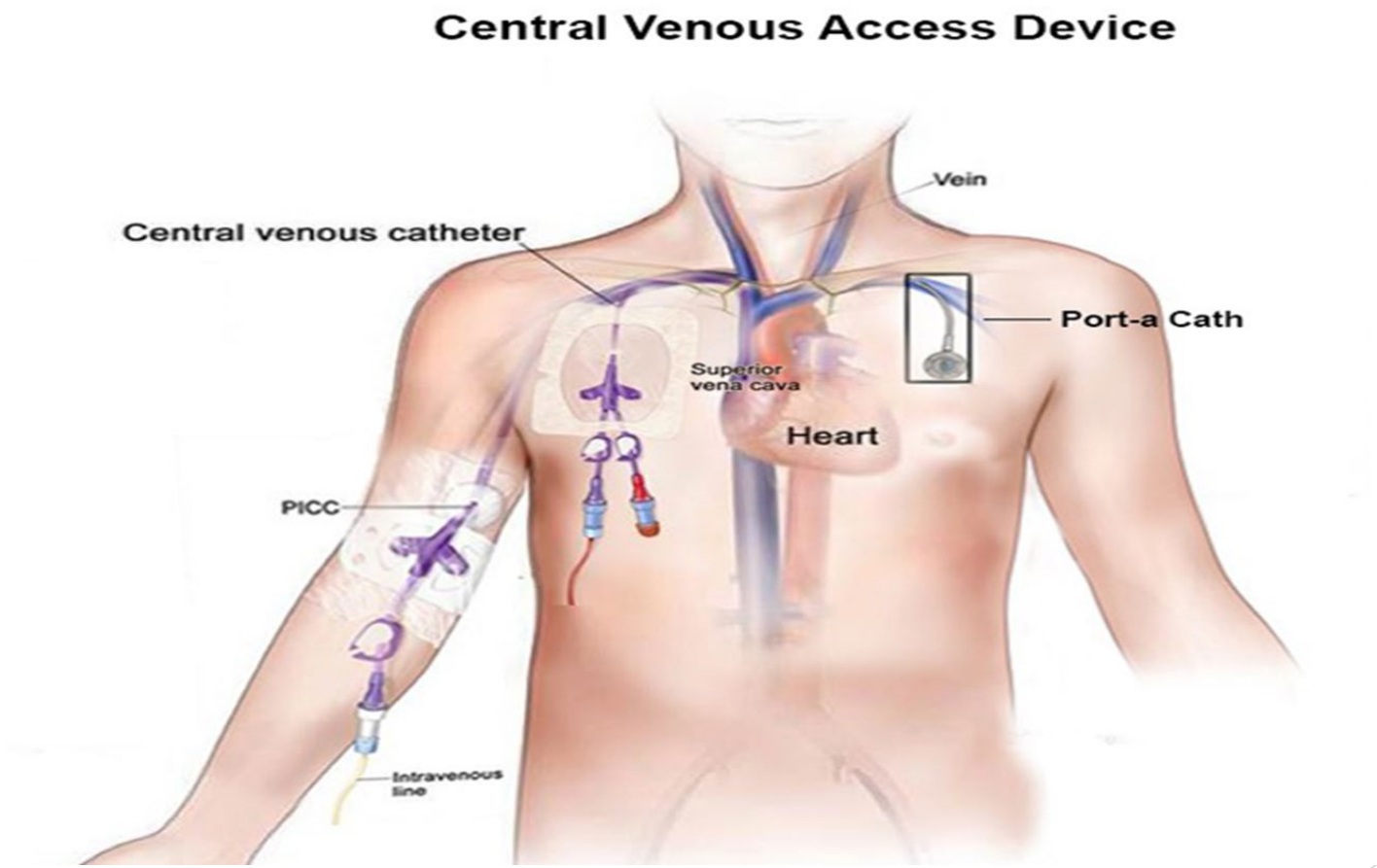
Signalling Pathway



Central Venous Access Devices

- Central Venous Access Devices (CVADs) are a fundamental part of health-care delivery and can be used in patients receiving treatment for acute and chronic illness in the hospital and community settings.
- They provide reliable access for delivering short and long term intravenous therapy, including Systemic Anti-Cancer Therapy (SACT) for many patients undergoing long-term treatment for cancer.
- With effective maintenance, CVADs can provide venous access for many months to years.

CVADs


Central Venous Access Device
Vein
Central venous catheter
Port-a Cath
Superior vena cava
Heart
PICC
Intravenous line

Portacath

- An implanted port is a totally implanted Vascular Access Device (VAD) made of two components: a reservoir with a self sealing septum which is attached to a silicone catheter.
- An implanted port (sometimes called a ‘Portacath’) is inserted under the skin into the body. The usual position is on the chest wall.
- Entry to the port is gained by puncturing the silicone membrane with a special type of needle, which is attached to a length of tubing (an extension set).

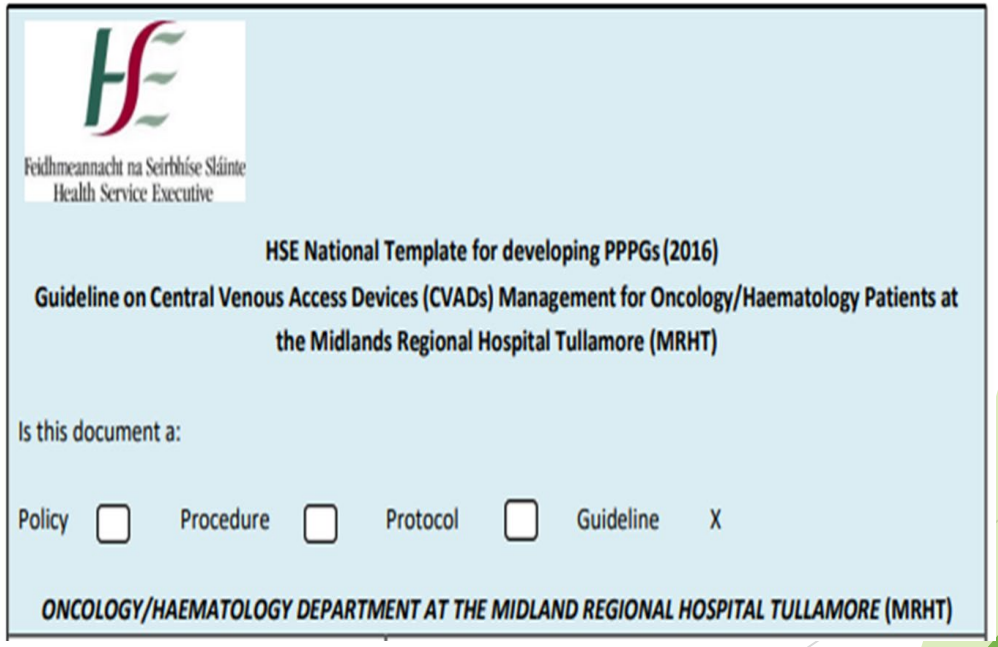
- A Hickman Line is a skin tunnelled catheter (single, double or triple lumen) inserted through the chest into a large vein leading to the heart. It lies in the subcutaneous tunnel before entering a central vein in the heart (i.e. subclavian or internal jugular vein).

- A Peripherally Inserted Central Catheter (PICC) is a single or double lumen catheter that is inserted via a peripheral vein into a central vein, the tip of which terminates centrally in the superior vena cava (SVC)

Central lines

Each hospital has their own specific guideline for management of CVADs.

It is essential to follow these guideline when caring for a patient with CVADs



Feidhmeannacht na Seirbhíse Sláinte
Health Service Executive

HSE National Template for developing PPPGs (2016)

Guideline on Central Venous Access Devices (CVADs) Management for Oncology/Haematology Patients at the Midlands Regional Hospital Tullamore (MRHT)

Is this document a:

Policy ☐ Procedure ☐ Protocol ☐ Guideline X

***ONCOLOGY/HAEMATOLOGY DEPARTMENT AT THE MIDLAND REGIONAL HOSPITAL TULLAMORE* (MRHT)**

Guideline on the management of CVADs

- Provide guidance and standardisation on the management of CVADs
- Assessment, inspection and monitoring
- Accessing
- Flushing
- Blood and blood culture sampling
- Care post insertion and removal

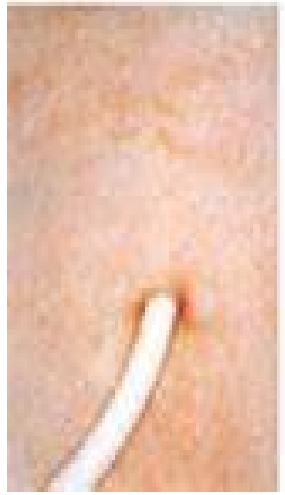
- Inspect the catheter site for sign of infection i.e. redness, tenderness, exudate at the exit site or tracking between the entrance and exit site.
- Inspect the site for signs of thrombus i.e. swelling or venous distension on chest/arm on side of CVAD.
- Aseptic Non Touch Technique (ANTT) should be used when managing CVADs

- Catheter-Related bloodstream Infection (CR-BSI) is an infection of the bloodstream where micro-organisms are found in the bloodstream of a patient with a CVAD, the patient has clinical signs of infection (sepsis) e.g. fever, chills) and there is no other apparent source of infection.
- It requires specific laboratory testing (blood cultures aerobic and anaerobic), which more thoroughly identifies the CVAD as the source of bloodstream infection.

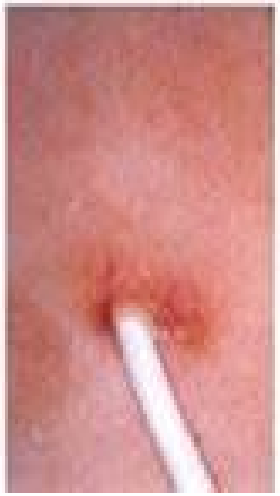
- Blood cultures are taken before administration or modification of antibiotics – National Sepsis Guideline, unless the patient is already on antibiotics.
- When taking peripheral blood cultures, it is not advisable to use existing peripheral lines/cannula, a fresh venepuncture site should be made.
-

- For the purposes of taking blood cultures from a CVAD (as this is the suspected site of infection), blood cultures should be taken from each lumen and also from a separate peripheral site to assist in determining diagnosis of systemic infection or CVAD related infection.
- If taking other bloods, then blood cultures must be taken first.

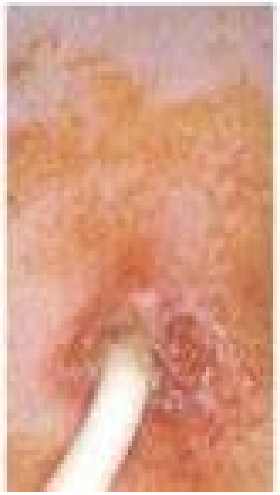
Score 0
intact, healthy skin



Score 1
reddening < 1 cm around the **CVC exit site; fibrin**



Score 2
reddening > 1 < 2 cm **around CVC exit site;** fibrin



Score 3
reddening, secretion and pus around the CVC exit site

- Push-Pause Positive Pressure Technique is a method of flushing central venous access devices using a pulsating flushing technique which creates turbulence within the lumen of the CVAD, thereby decreasing the risk of fibrin and platelets becoming adhered to the internal walls of the device and minimising the risk of occlusion. The brisk push-pause technique involves a brisk stop-start flushing action as the fluid is injected into the CVAD, i.e. pushing approximately 1ml of a compatible solution, then pause, push a bit more then pause again until all the solution is injected. The positive pressure component of this method involves clamping the CVAD tubing when the final 1ml is being instilled.

Community Cancer Programme

- The NCCP Community Cancer Nursing eLearning Programme was created by HSE National Cancer Control Programme in conjunction with patient representatives and clinical colleagues. This new eLearning resource will be available on HSeLanD for use by any registered nurse throughout the HSE in Ireland.

hseland.ie

nccp
National Cancer Control Programme

NCCP Community Cancer Nursing eLearning Programme

- The programme will ensure that community-based nurses are equipped with the knowledge, skills and attitudes to safely provide care to individuals with cancer at all stages of the cancer trajectory.

- The programme consists of 3 modules and each module has a multiple-choice exam which has a pass mark of 80%:

- Module 1: Introducing Cancer and its Effects on the Person.
- Module 2: Assessing and Managing a Person with Cancer
- Module 3: Managing a Central Venous Access Device

Total duration 135 minutes plus assessments

Pre-treatment bloods

- Depends on the cancer
- Treatment- chemo or immunotherapy
- Adjuvant or metastatic – tumour markers
- Ca125,CEA, PSA, CA 153
- TFTs, Cortisol levels
- NCCP protocols guide practice

Oncology Emergencies

- Neutropenic Sepsis*
- Spinal Cord Compression* (SCC)
- Tumour Lysis Syndrome* (TLS)
- Superior Vena Cava (SVC) Syndrome*
- Hypercalcaemia
- Syndrome of Inappropriate Antidiuretic Hormone Secretion (SIADH)
- Disseminated Intravascular Coagulation (DIC)
- ↑ Intracranial Pressure (ICP)
- Cardiac Tamponade
- Infusion Reactions
- Cytokine Release Syndrome
- Malignant Pleural Effusion

Sepsis

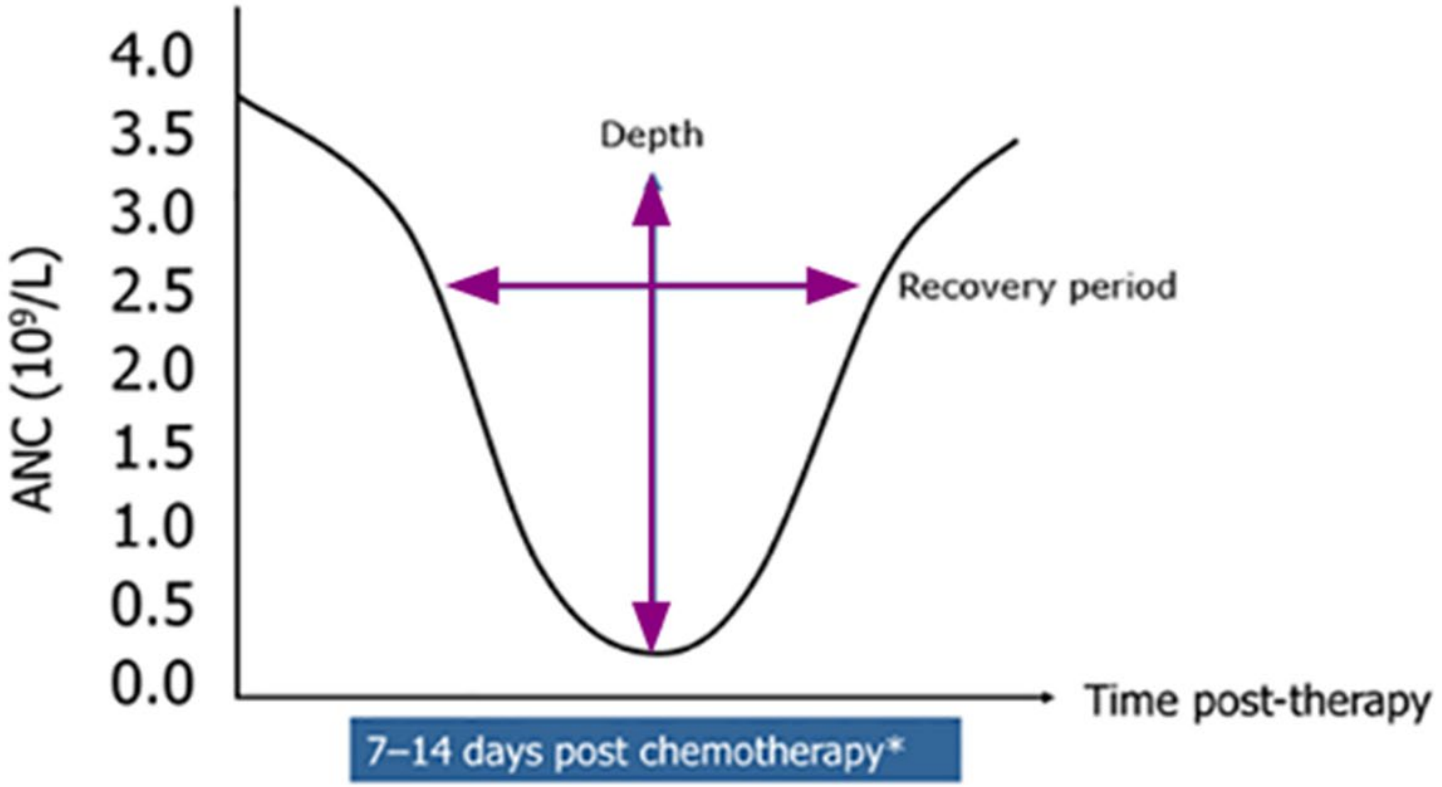
- Sepsis is life threatening organ dysfunction caused by a dysregulated host response to infection
- Septic shock is a subset of sepsis in which underlying circulatory and cellular/metabolic abnormalities are profound enough to substantially increase mortality
- With the best available therapy
- 1 in 5 with septic shock will die

Neutropenic Sepsis

- Neutropenic sepsis is a serious condition that can be life-threatening
- Low level of neutrophils and an infection at the same time - Febrile Neutropenia.
- An absolute neutrophil count (ANC) of <500 cells/microliter, or an ANC that is expected to decrease to <500 cells/microliter over the next 48 hours
- Temperature of 37.5°C or above or temperature below 36°C

- Any type of anti-cancer treatment in the last four weeks (causing a low level of neutrophils)
- Potentially fatal complication of SACT. Mortality rates ranging between 2% and 21% have been reported in adults
- Medical Emergency

When neutropenia occurs



- A fever is sometimes the only sign of an underlying infection

- Fever maybe absent in 10% of patients with infection, especially in patients with profound neutropenia or who are receiving corticosteroids-referred to as cold sepsis (temp <36.0C)

- Neutropenic sepsis, with or without fever, is a medical emergency and requires urgent management as per local neutropenic sepsis pathway

- Early detection and intervention are essential for better patient outcomes

Who is at risk?

- Adults 65 years and older
- Multiple co-morbidities
- Poor performance status
- Hx of infections
- Advanced disease
- Invasive lines in-situ, IV's, urinary catheters, indwelling CVADs
- Any breach in skin integrity e.g. open wounds, mucositis
- Malnutrition
- Haematological malignancy
- Compromised organs e.g. cardiovascular disease
- Immune compromised pre and post tx especially haematology pts
- Post SACT – nadir period
- No GCSF prophylaxis's

Signs and Symptoms

- Fever, Temp >37.5c, <36c***
- Shaking or chills***
- Tachycardia, HR >90(bpm)
- Hypotension, systolic BP <90, mean arterial pressure <65 or 40 mmHg below patient's normal
- Drop in O2 saturations <90%***
- Respiratory rate >20 (breaths pm)***
- Decrease in urinary output
- Altered mental status
- Bedside Glucose >7.7 mmol/L (non-diabetic)

Management

- Use the Sepsis Screening Pathway if INEWS is ≥4 (5 on O2), INEWS < 4 or < 5 if on Oxygen in immunocompromised or older person and:
- Risk of neutropenia (on SACT/Radiotherapy)
- Clinical evidence of NEW ONSET organ dysfunction
- Systemic Inflammatory Response (≥ 2 SIRS) plus ≥ 1 Comorbidity
- Doctor must review within 30 minutes (use ISBAR)
- Commence the Sepsis 6 Screening Bundle Within 1 hour

The Sepsis 6 treatment bundle

TAKE 3

Blood Cultures

Take blood cultures using aseptic (no touch) technique prior to giving antimicrobials unless this leads to a delay > 45 minutes. Other cultures as indicated by history and examination.

Blood Tests

Point of care lactate (venous or arterial). Full blood count, Renal Profile, Liver Profile +/- Coagulation screen. Other tests and investigations as indicated.

Urine Output

Assess urinary output as part of volume/perfusion status assessment. For patients with sepsis/septic shock start fluid balance charts. Catheterisation and hourly measurements may be required.

GIVE 3

IV Antimicrobials

Give antimicrobials as per local antimicrobial guideline based on the site and source of infection (community or healthcare acquired) and the patient's allergy status. Assess requirement for source control.

IV Fluids

Patients with hypotension should receive up to 30mls/kg of isotonic crystalloid within 1 hour of presentation. Start vasopressors in patients who are fluid unresponsive. Patients with hypoperfusion should receive fluid to restore perfusion using a bolus and review technique. Give 500ml bolus over 15mins up to 2 litres, reassessing frequently. Boluses may be amended based on clinical context - see fluid resuscitation algorithm.

Call Anaesthesiology/Critical Care if hypotensive or if unresponsive to fluid

Oxygen (only give if needed)

Titrate supplementary oxygen to achieve oxygen saturations 94-96% (88-92% in patients with chronic lung disease).

Immunotherapy

- Immunotherapy is now part of the standard of care for many cancer patients.
- The rapid advances in the science behind immunotherapy has offered oncology patients durable responses and potentially less toxicity.
- Immunotherapy encompasses several treatment modalities including oncolytic viruses, checkpoint inhibitors and chimeric antigen receptor (CAR)T-cell therapy

- Cancer cells evolved from normal cells, and cancer cells often have mutated proteins presented on their cell surface that allows immune cells to flag them as foreign.

- However, cancer cells can evade immune attack by mimicking normal cells to activate the "STOP" button of the T cells, which acts like a “brake” that prevents the immune cells from attacking cancer cells.

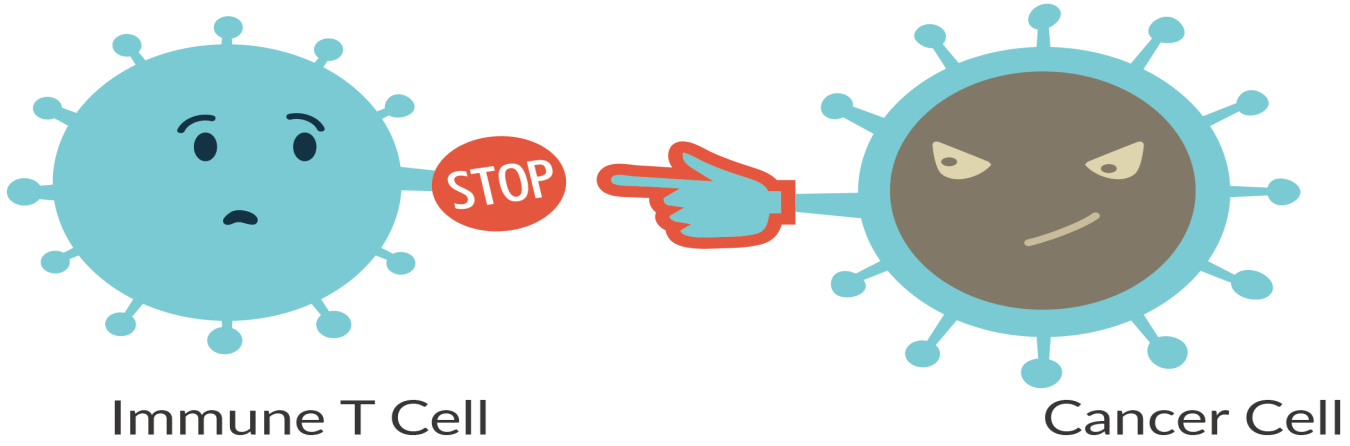
How immunotherapy works

- Immunotherapy works with the body's own immune system to identify abnormal cancer cells that can be destroyed while healthy normal cells are unharmed.
- The immune system is the body's defence against infectious organisms and other invaders.
- It is made up of a network of cells including T and B cells,tissues and organs working together to protect the body by attacking organisms and substances that invade the body and cause diseases.
- Cancer cells can invade this defence mechanism and subsequent destruction.

- Chemotherapy destroys rapidly dividing cells such as cancer cells but also attacks other rapidly dividing healthy cells e.g. blood and mucosal cells leading to significant toxicities.
- Immunotherapy on the other hand works with the body's immune system by helping T cells to better distinguish cancer cell from healthy cells. The side effects are inflammatory and include rash, diarrhoea, liver inflammation and endocrine toxicities.

MODE OF ACTION

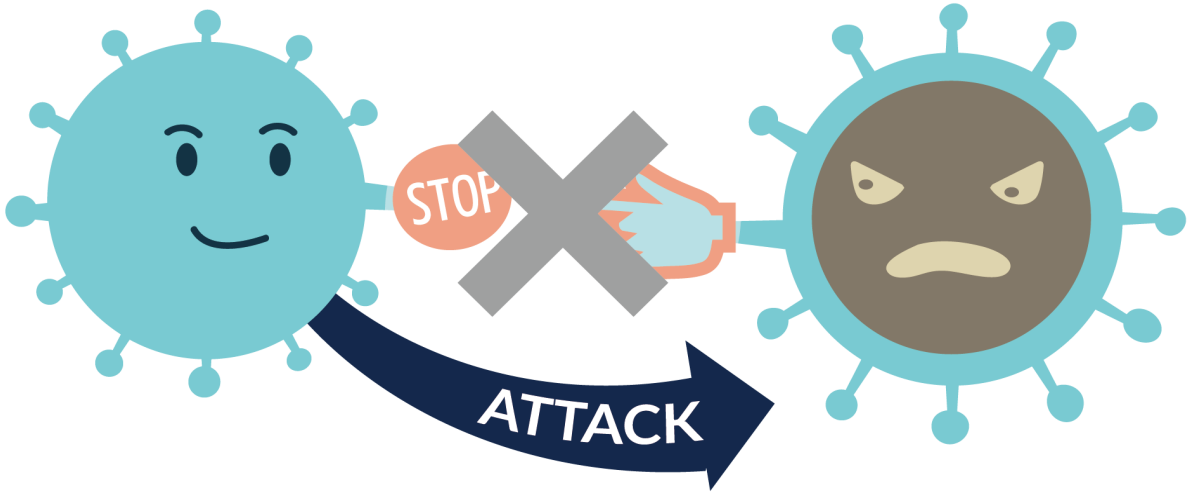
1 Cancer cell presses the STOP button of the immune T cell to stop the attack.



Immune checkpoint inhibitor works by turning off the checkpoint mechanism, which prevents the cancer cell from activating the brake on T cells. The T cells become activated again and start attacking the cancer cells

2 Checkpoint inhibitor blocks the STOP button, “taking the brakes off immune.”

3 Immune T cell is re-activated and can start attacking cancer cells.



KEY DIFFERNCES BETWEEN CHEMO AND IMMUNOTHERAPY

CHEMOTHERAPY	IMMUNOTHERAPY
•ACTS ON TUMOUR DIRECTLY	•TREATS THE IMMUNE SYSTEM
•ATTACKS ALL RAPIDLY DIVIDING CELLS	•ACTIVATES A STRONGER THAN NORMAL IMMUNE RESPONSE
•WORKS AS LONG AS DRUGS ARE IN THE SYSTEM	•TEACHES THE IMMUNE SYSTEM TO RECOGNISE AND DESTROY CANCER CELLS
•TUMOURS CAN SHRINK IMMEDIATELY	CAN WORK LONG AFTER TX ENDS
•SIDE EFFECTS RESULT FROM DESTRUCTION OF RAPIDLY DIVIDING CELLS	SIDE EFFECTS RESULT FROM OVER ACTIVE IMMUNE SYSTEM

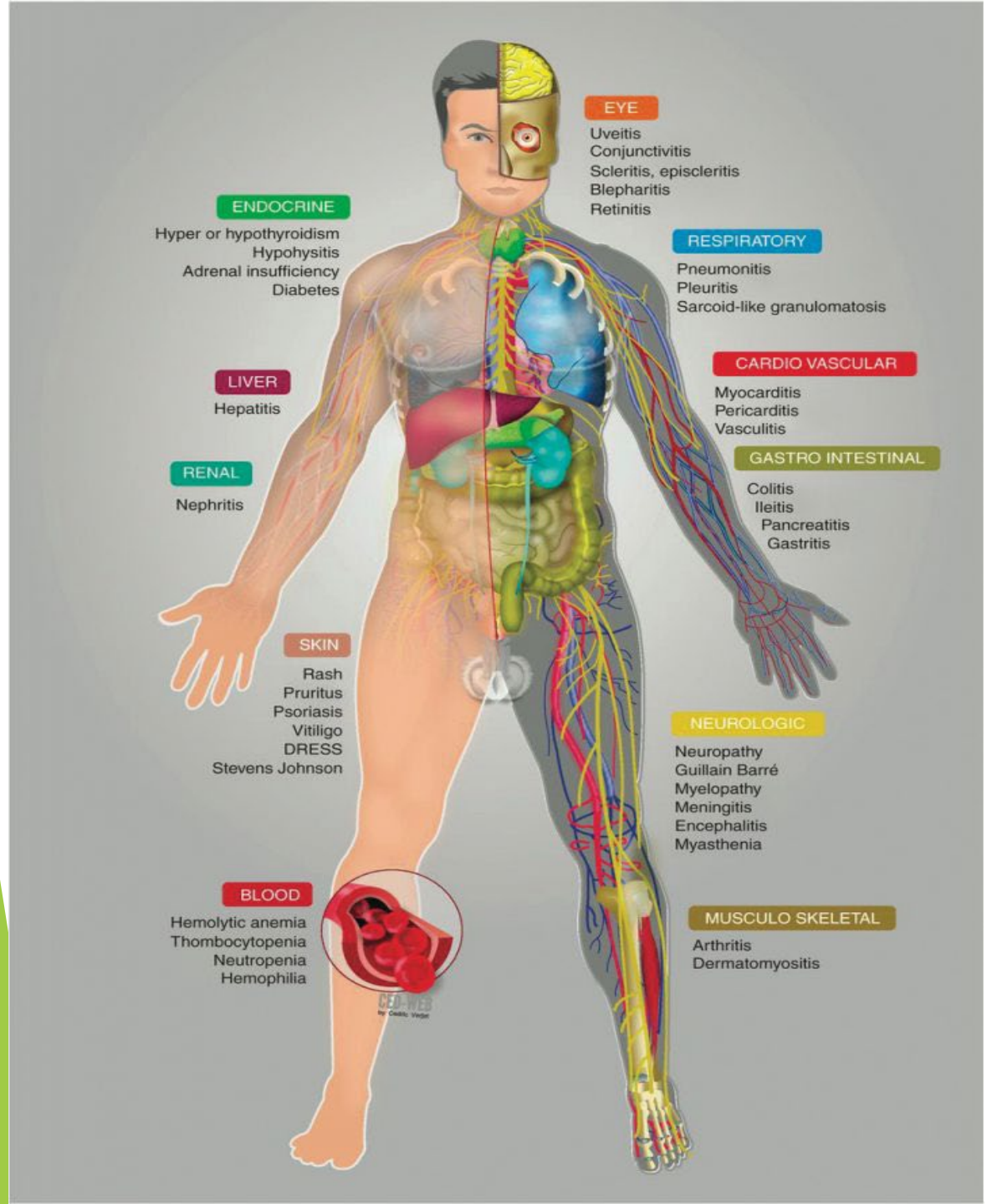


Table Recognizing the Side Effects of Immune Checkpoint Inhibitors

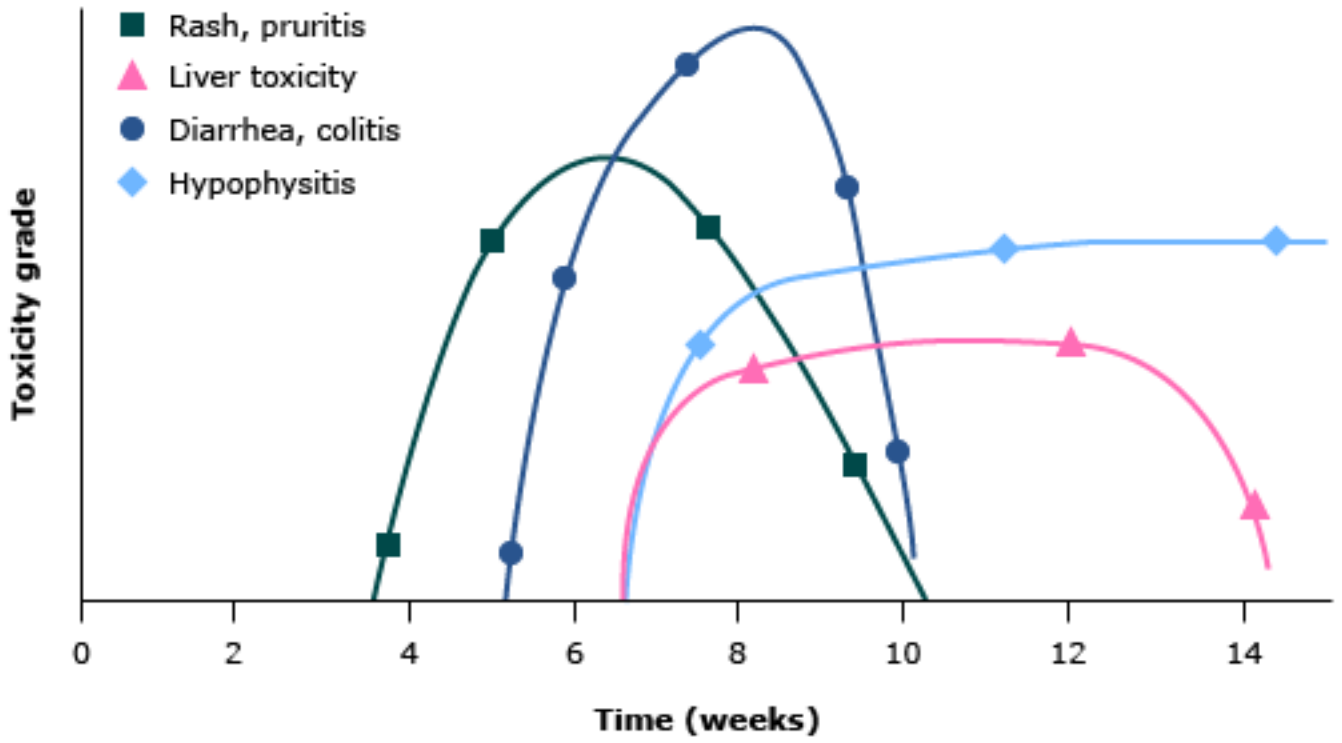
Body system/side effect
Dermatologic events
Bullous dermatoses
Rash/inflammatory dermatitis
Severe skin reactions
Gastrointestinal events
Colitis
Hepatitis
Pulmonary event
Pneumonitis
Endocrine events
Diabetes
Hyperthyroidism (primary)
Hypophysitis
Primary adrenal insufficiency
Musculoskeletal system events
Inflammatory arthritis
Myositis
Polymyalgia-like syndrome
Renal system events
Nephritis
Symptomatic nephritis
Nervous system events
Myasthenia gravis
Guillain-Barré syndrome
Peripheral neuropathy
Autonomic neuropathy
Aseptic meningitis
Encephalitis
Transverse myelitis
Hematologic events
Autoimmune hemolytic anemia
Acquired thrombotic thrombocytopenic purpura
Hemolytic uremic syndrome
Aplastic anemia
Lymphopenia
Immune thrombocytopenia
Acquired hemophilia
Cardiovascular events
Myocarditis
Pericarditis
Arrhythmias
Impaired ventricular function with heart failure
Vasculitis
Venous thromboembolism
Ocular events
Uveitis/iritis
Episcleritis
Blepharitis

Source: Brahmer JR, et al. *J Clin Oncol*. 2018 Feb 14. Epub ahead of print.

Immune related adverse events

- Drug related- more common with anti-CTLA 4 therapies 61-79% compared with anti-PD1 and anti-PD-L1 27%.
- More severe events are seen with anti-CTLA4 agents.
- Dose dependent - with anti-CTLA4 agents but not with anti-PD1 and anti-PD-L1 agents.
- Fatalities are higher with anti CTLA4 agents.
- Most fatalities with anti-CTLA4 agents are with colitis whereas pneumonitis, myocarditis and hepatitis are associated with anti-PD1 and anti-PDL1 agents.

Time to appearance of ipilimumab-related adverse events

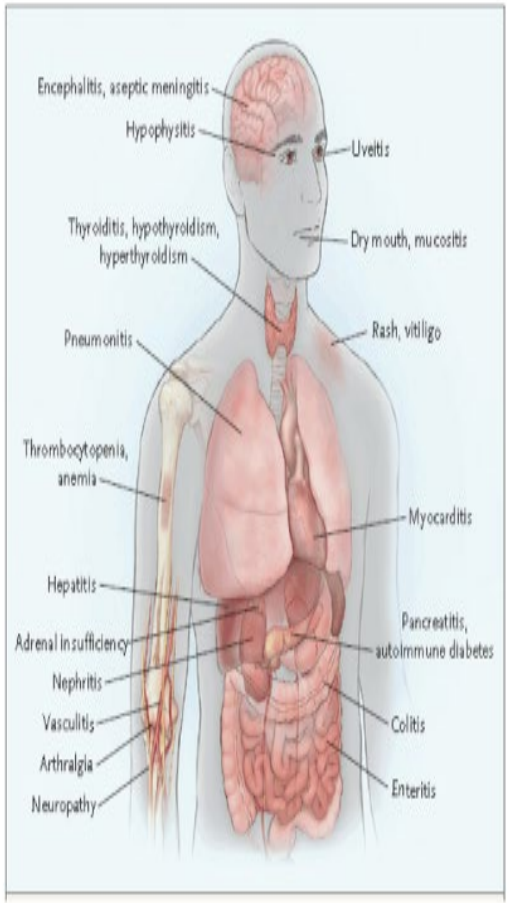


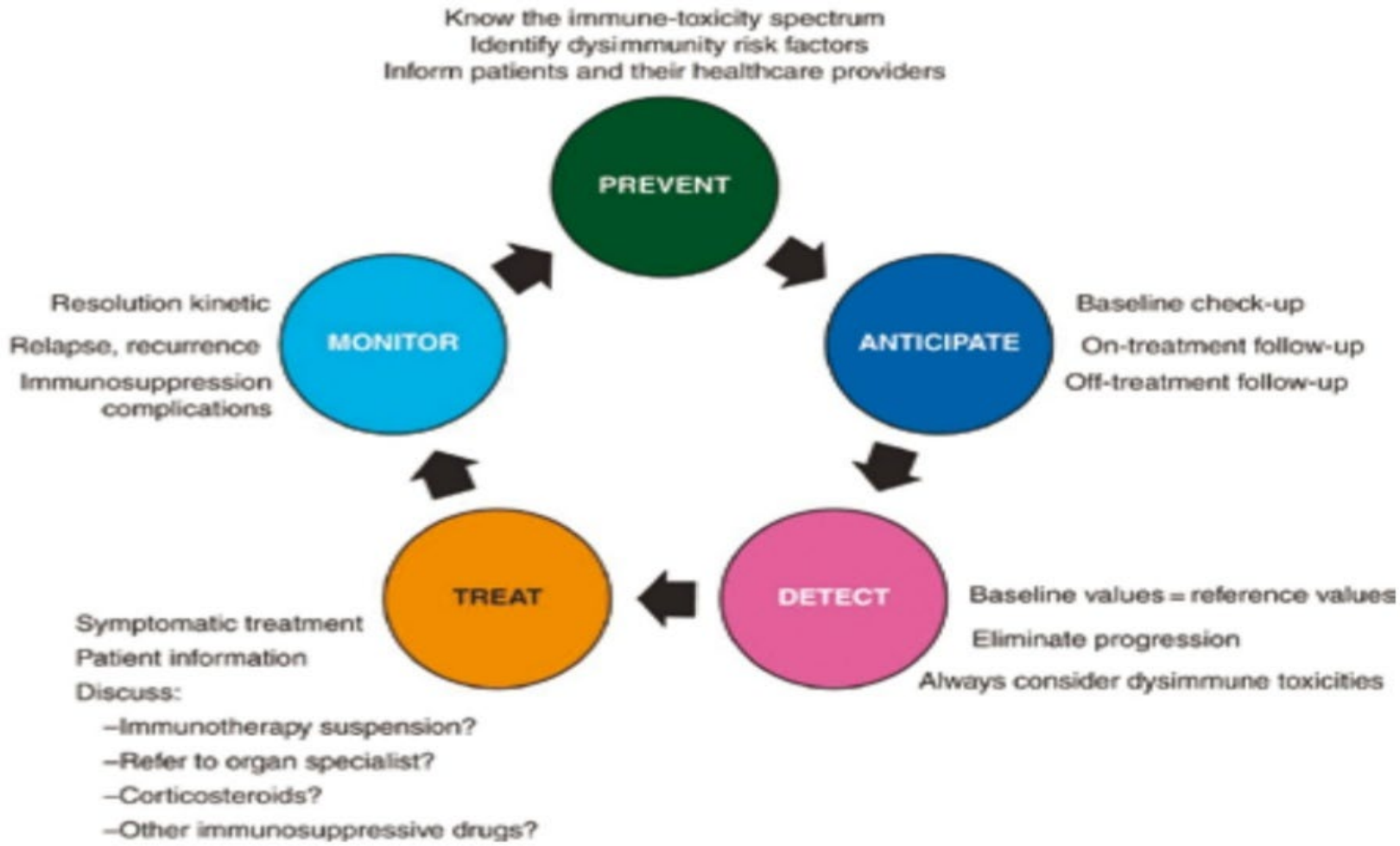
From: Weber JS, Kahler KC, Hauschild A. Management of immune-related adverse events and kinetics of response with Ipilimumab. J Clin Oncol 2012; 30:2691-7.

UpToDate®

Adverse Effects

- The most common irAEs are dermatological occurring in 44-68% of patients followed by gastrointestinal occurring in 35-50% and endocrine in 6%.
- irAEs can occur at any point during the treatment and even after stopping the treatment.
- They are the most common reason for treatment discontinuation.





The five pillars of immunotherapy toxicity management

Source: S Champiat et al (2016) *Ann Oncol* 27:559–74, republished by permission of Oxford University Press

TOXICITIES

- Usually occur early in the treatment cycles within weeks to 3 months
- However the first onset of adverse effects has been documented as long as 1 year after discontinuation of therapy.
- Before initiating immunotherapy it is recommended to:

- Assess the patient for susceptibility of developing irAE – patient and family history, general physical condition, autoimmune diseases, baseline bloods and CT staging

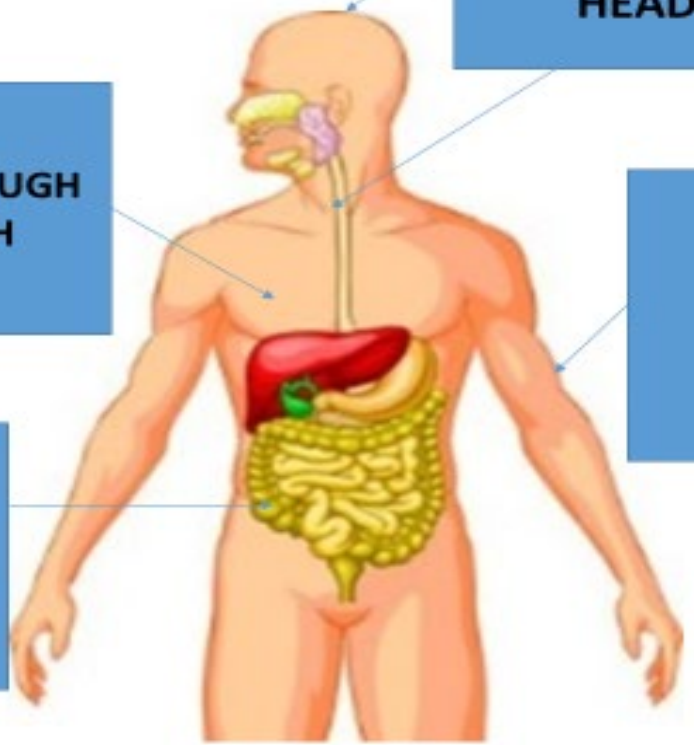
- Pt with a history of autoimmune diseases or who are being actively treated for an autoimmune disease are at risk for worsening of their autoimmune disease while on immunotherapy blockade.

- Transplant patients

Immunotherapy bloods

- FBC
- U&E
- LFT (inc ALT)
- TFts
- Cortisol
- Glucose
- (Testosterone)
- Virology screen

EVALUATION EVERY VISIT BY PATIENT



HEADACHE

ONGOING COUGH OR COUGH

RASH

ABDOMEN PAIN DIARRHEA

Fatigue

What questions do we ask?

Always consider what is normal for the patient, is this a new symptom

General

- Are you able to carry out your normal activities?
- Are you having any problems with your eyes?
- Any breathing difficulties?

Neurologic

- Are you having weakness in your hands or legs?
- Are you having trouble gripping things?
- Have you noticed that you are dropping things?
- Are you having difficulty walking or are you unsteady?
- Are you having numbness or tingling in your hands or feet?

Gastrointestinal

- Are you nauseous and/or vomiting?
- How many bowel movements are you having each day?
- Is this different from your normal?
- Are your stools loose or watery?
- Are you doing anything to manage this? If yes, what?
- Have you seen any blood or mucus in your stools?

Skin

- Does your skin itch? If yes, is this keeping you awake at night?
- Do you have a rash? If yes, what are you using for it?
- Have you noticed any yellowing to your skin?

General Guidelines for Management of irAEs

- **Grade 1: asymptomatic to mild symptoms**
  - Observation
  - Supportive care
  - Intervention not needed
- **Grade 2: moderate symptoms**
  - Local or noninvasive intervention indicated
  - Withhold drug, consider redose if toxicity resolves to grade ≤ 1
  - Low-dose corticosteroids likely needed
  - May be able to continue treatment
- **Grade 3: medically significant but not immediately life-threatening**
  - Stop immunotherapy immediately
  - Hospitalization indicated
  - High-dose steroids indicated
  - Slow steroid taper over ≥ 1 mo once toxicity resolves to grade ≤ 1
- **Grade 4: life-threatening consequences**
  - Urgent intervention
  - Permanently discontinue ICI therapy

- Consult promptly with relevant specialists for affected organ systems
- Dose reduction of ICI is NOT a recommended strategy

CTCAE v4.03. June 2010. Atezolizumab adverse reaction management brochure. Nivolumab adverse reaction management guide. Pembrolizumab adverse reaction management guide.

Please note

- Some patients will still think that they are on chemotherapy- get the names of the drugs.
- Patients are given alert cards
- Symptoms of side effects can be subtle, may appear mild but can worsen if left untreated
- Alarm bells must ring when patients are on combination immunotherapy treatment as the chance of a G3/G4 toxicity is 1 in 2
- Signs/symptoms can be delayed and may occur weeks to months after last injection (cf chemotherapy < 6 weeks, for Immunotherapy we accept patients <6months from last treatment)

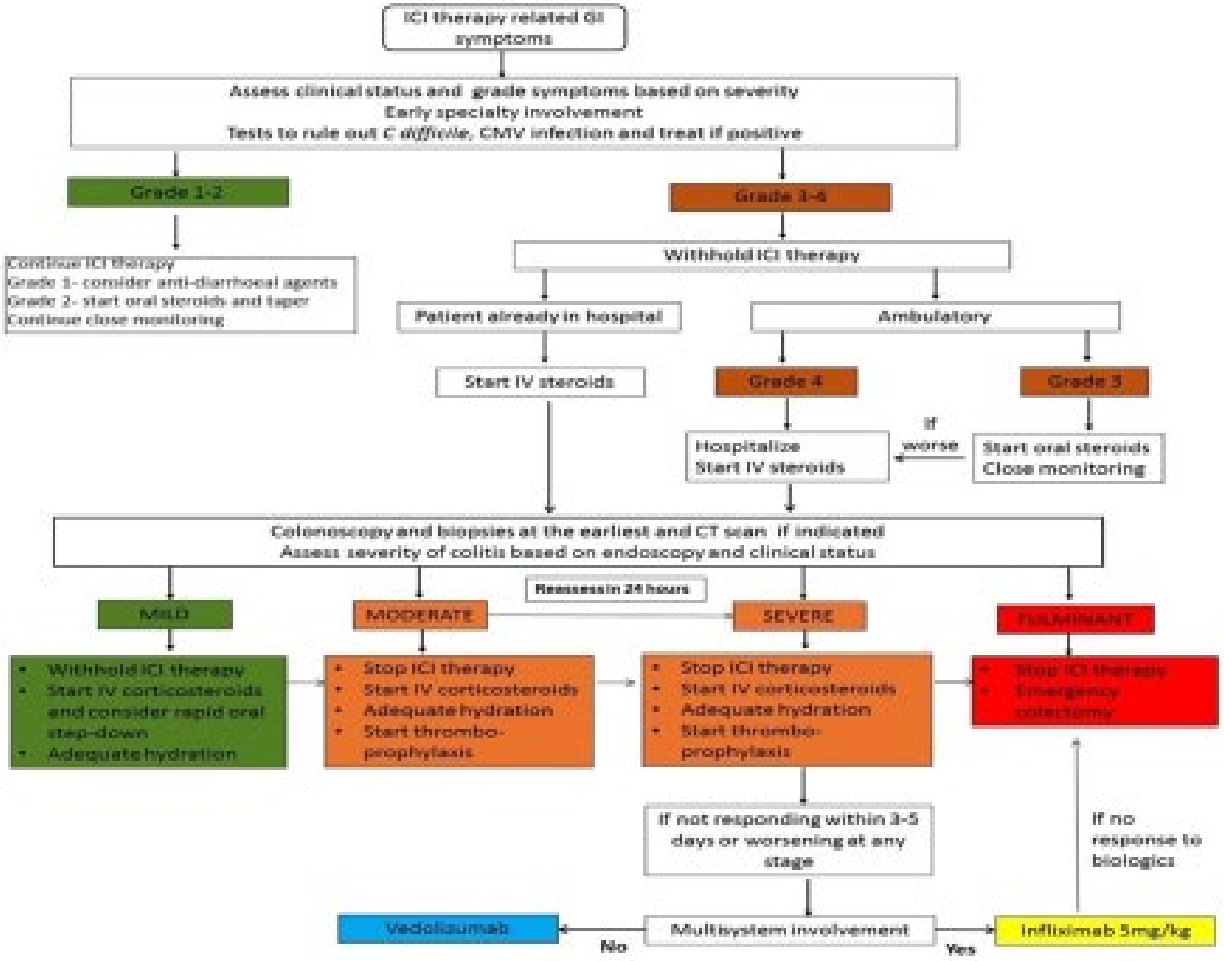
General principles for managing toxicities

Education, education, education!

- Critical role of staff to educate patients and colleagues

Management

- **Early assessment and intervention is key**
- Algorithms
- Initially high dose steroids (oral or IV)
- Exclude non-immunotherapy causes
- Supportive measures
- Monitor response
- Multi-disciplinary approach



10 Principles of IO Toxicity

1. Take notice of vague symptoms and investigate fatigue - A clinically well patient does not mean they do not have toxicity
2. A blood test and a symptomatic review can r/o toxicity
3. An expanded blood panel as standard
4. Treat the severest parameter
5. Monitor, monitor, monitor -Things change quickly and follow up is essential
6. Know your local and national protocols
7. Treat with high doses of steroids , early (and if appropriate)
8. It is essential to reach out to medical specialists and subspecialists with an interest
9. If steroids aren't working – add in
10. Ensure side effects of management are recognised and acted on


Thank you
For your
Attention
Adobe Stock | #421999134

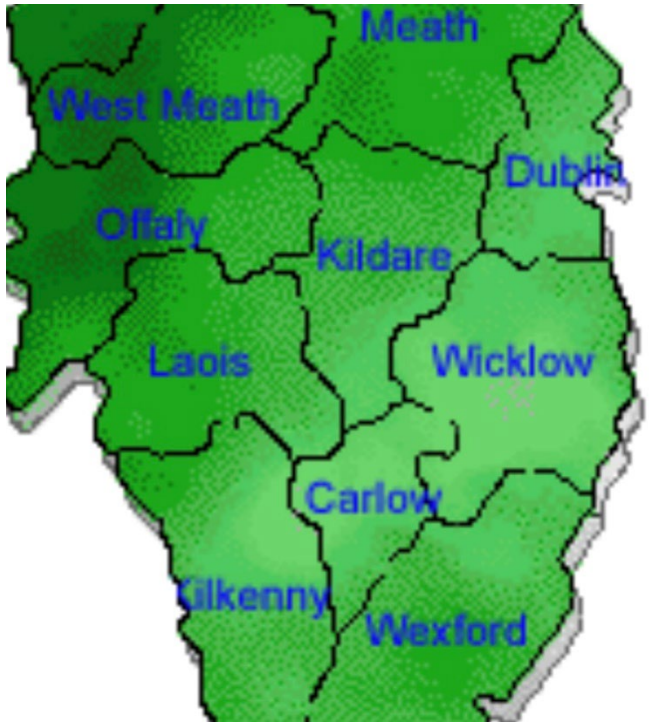
The Role of the OPAT CLINICAL NURSE MANAGER II in TUH

AOIFE PEARSON OPAT CNM II

SINÉAD FENLON OPAT CNM II

Brief Introduction

- Outpatient parenteral antimicrobial therapy (OPAT) has been available at Tallaght University Hospital since 2013 under the guidance of the Microbiology team. The Infectious Disease team and OPAT CNM II commenced clinical governance of the service from September 2022.
- Patients residing within TUH catchment area are served by the following nursing services - Community Intervention Team (CIT) in Dublin (both South and North), TCP, Caredoc, Recovery at Home Ireland (RAHI), Point of Care (POC) and by some private health insurers (VHI, AVIVA, LAYA Health)



What is OPAT?

- **O**utpatient = Delivered outside the hospital, either in patient's home, step down unit or long term care
- **P**arenteral = Intravenous (IV)
- **A**ntimicrobial = Antibacterial, Antifungal, Antiviral
- **T**herapy = Treating the infection

We provide a service to allow early discharge of medically stable patients who remain in hospital because of the need for IV Antibiotics.

We aim to provide treatment that is equal if not superior to inpatient care.

Types of OPAT

- H-OPAT refers to administration of IV antimicrobials by a Healthcare professional
- This is suitable for patients requiring more support or for more complicated drug administrations
- **Nurse can visit up to three times a day, once/twice daily dosing is preferred due resource utilisation.**

- S-OPAT refers to Self-administration of IV antimicrobials by the patient, relative, or caregiver once educated to do so
- More flexible dosing schedule possible and can use infusion pumps that administer drug over 23 hours
- S-OPAT is preferred and should be considered for all patients

Benefits of OPAT

- Patient satisfaction
- Reduces the risk of hospital acquired infections
- Allows patient to return to normal routine which enhances patient outcome
- Frees up acute beds for unwell patients
- Saves hospital costs
- Reduces length of stay
- Admission avoidance for a select group of patients

Referral Process for OPAT

Primary team identify patient as possible candidate

Check inclusion and exclusion criteria

If Microbiology consulting, primary team to ask Micro to refer to ID

Referral sent to Infectious Disease on Synergy

Patient reviewed by Infectious Disease team who will refer to OPAT CNM

OPAT CNM will determine patient suitability and will refer patient through OPAT Portal as soon as possible, usually same day

Exclusion Criteria

- Acute unstable chest pain
- New onset cardiac arrhythmia
- ECG changes
- Poorly controlled diabetes
- Ongoing alcohol and/or drug dependencies
- Respiratory failure
- Sepsis syndrome
- Vulnerable adults without a carer

Avoid Discharge Delays

Delays are inevitable but if we are aware of the possible causes it is easier to predict and overcome them.

Potential Delay

- A lack of capacity in community OPAT services is one of the most frequent delaying factor
- A potential delay in peripherally inserted central catheter (PICC) insertion

Avoidance

- Early referral to ID and contact with OPAT CNM to prepare referral for OPAT to organise staffing in the community
- Complete interventional radiology request form as soon as possible, making sure to include 'OPAT' in 'Reason for Procedure'. Also, ensure consent is attached to IR form and there is a recent FBC and COAG

Avoid Discharge Delays

Potential Delay

- S-OPAT can take 24-48hrs to compound the medication and provide education and training

Avoidance

- Patient can be sent home on H-OPAT while awaiting S-OPAT education and medication

How does the OPAT CNM assist in making OPAT successful?

- Patient satisfaction – Integrated care in the community allowing return to normal life which enhances patient outcome
- Communication – Successful communication between medical/surgical teams, ward CNMs and OPAT CNM to facilitate early discharge
- Response Time – Fast response to referrals, usually same day
- **Patient follow up - Weekly clinical review in the dedicated OPAT clinic by the Infectious Diseases' team to assess the progress of patient, review of bloods until patient completes OPAT and is then followed up in the post OPAT clinic either on PO antibiotics or without antibiotics for a duration deemed clinically necessary by the ID team.**

Evaluation of OPAT Service

- We produce weekly, monthly, and yearly activity reports
- We monitor KPIs closely
- We monitor
  - Bed Days Saved
  - Discharge Time Frames
  - Delaying Factors
  - Common Diagnosis/Antimicrobials

How do we build on the success of OPAT in TUH?

1. Build on the communication and promote the service – more visibility of the OPAT nurse, ward visits, key meetings, grand rounds, screensavers, posters around TUH, NCHD inductions, information folders on the wards

2. CVAD Fast tracking – Possible pathway with vascular access team for midlines and PICCs at the bedside

3. Pathways – Continue to assess and evaluate current pathways and to develop new pathways to increase patient centred care at home and safe discharges

4. Nurse led clinics – To assess patients, if needed, between OPAT clinics to avoid readmission (phlebotomy, vital signs, CVAD care, wound care etc)

How do we build on the success of OPAT in TUH?

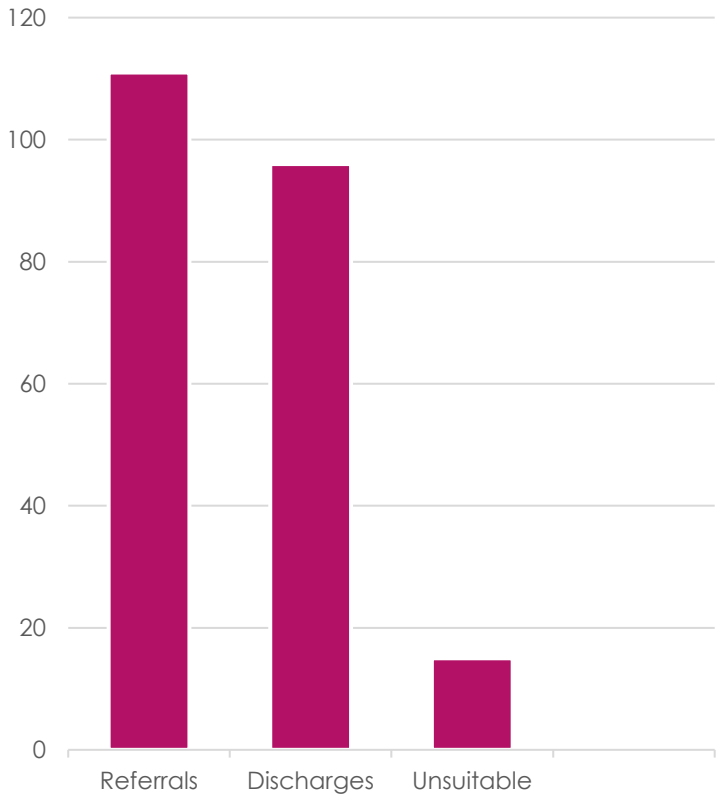
5. Audits and Evaluation – Patient surveys, audit on services and evaluate patient care

6. Wound care – Utilise the OPAT service for all wound care referrals

7. SOPAT – Increase SOPAT referrals with training, education and health promotion. HOPAT/SOPAT hybrid. Cost saving.

8. Documentation – Liaise with nurse providers re EOC reports. Develop EOC documentation for CIT to asses patient care.

OPAT Referrals and Discharges Sept 2023

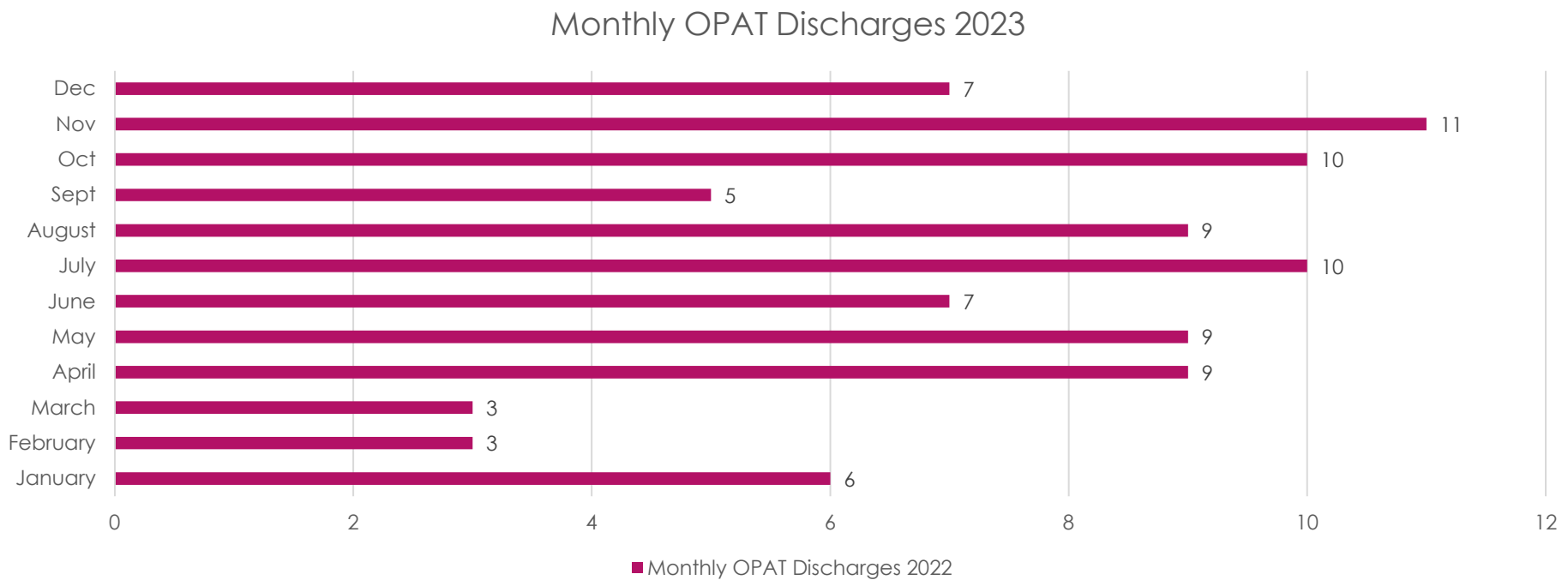


- **Referrals – 108**
- **Discharges – 93**
- **Unsuitable for OPAT-15**

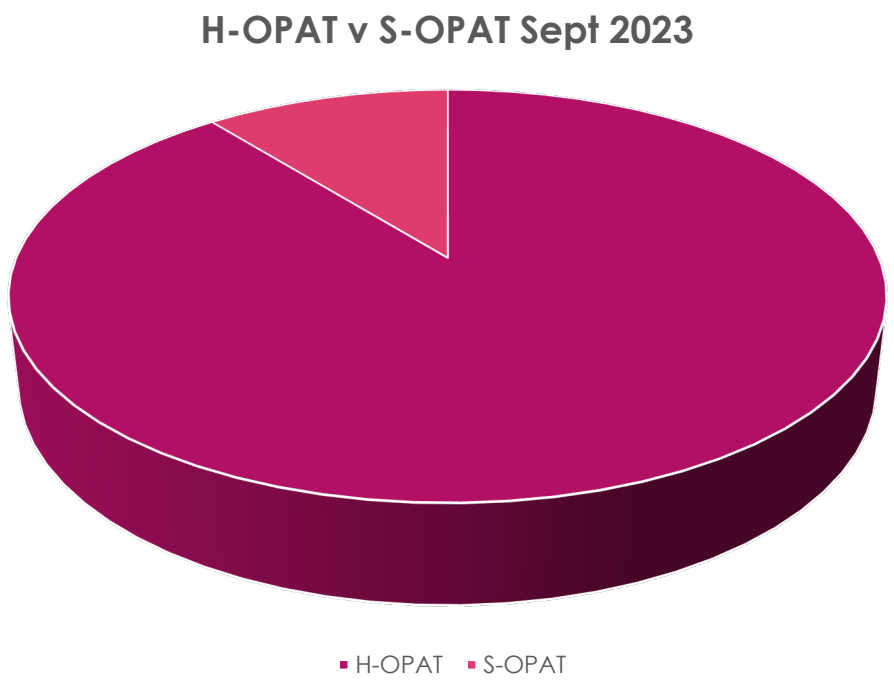
Reasons for OPAT referral but not discharged:

- 8 PO switch
- 2 did not consent
- 1 previously non-compliant
- 1 unable to attend weekly follow up
- 1 not in catchment area
- 1 unsafe to have PICC line due to social circumstances
- 1 needed MDT follow up

Monthly OPAT Discharges 2023

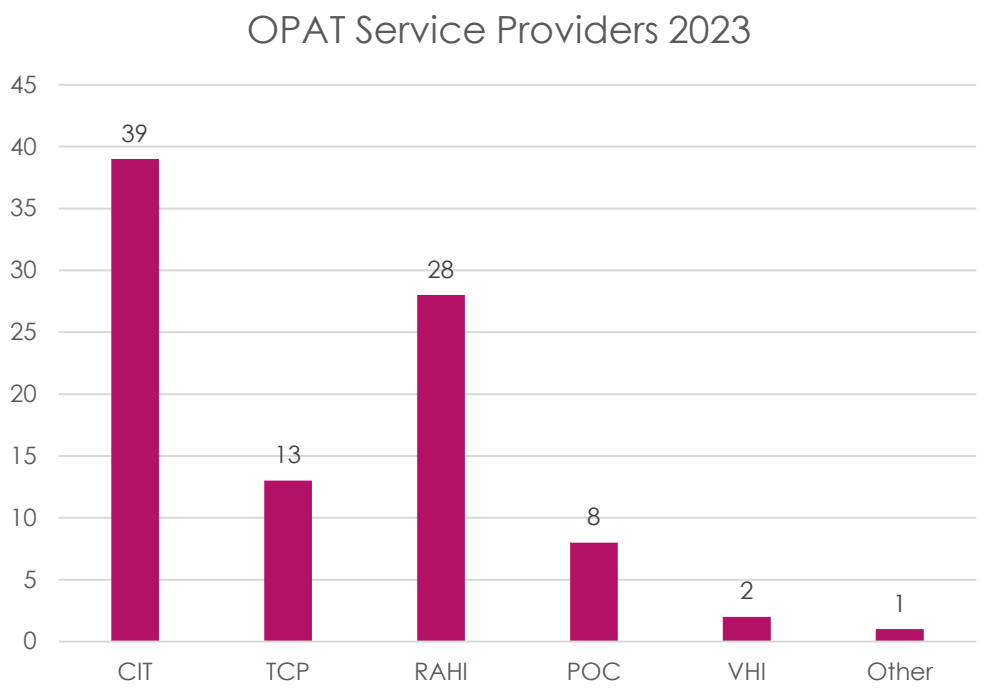


HOPAT v SOPAT 2023



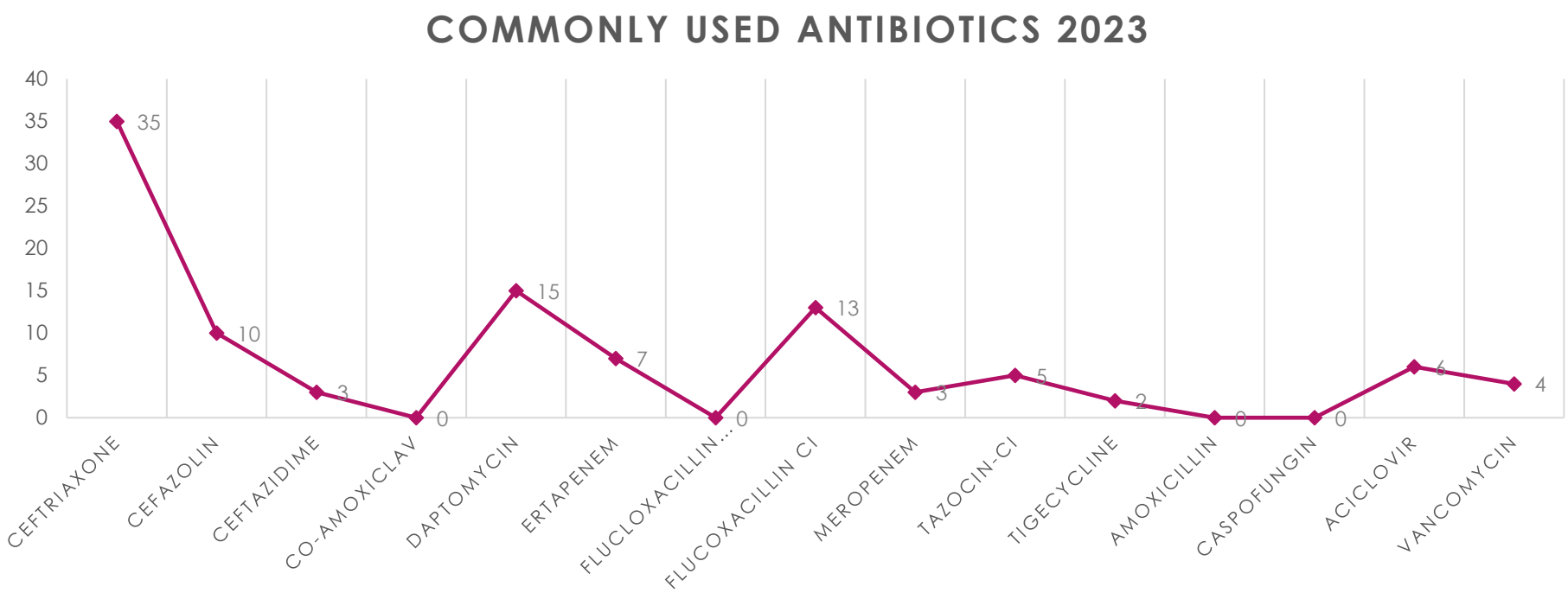
- **HOPAT – 85**
- **SOPAT – 6**
- Baxter are the only pharmacy to compound medications for SOPAT.
- The SOPAT nurse provider is Point of Care (POC)
- POC provide training and education to all patients going on SOPAT
- They do weekly visits for PICC line care and bloods

OPAT Service Providers 2023

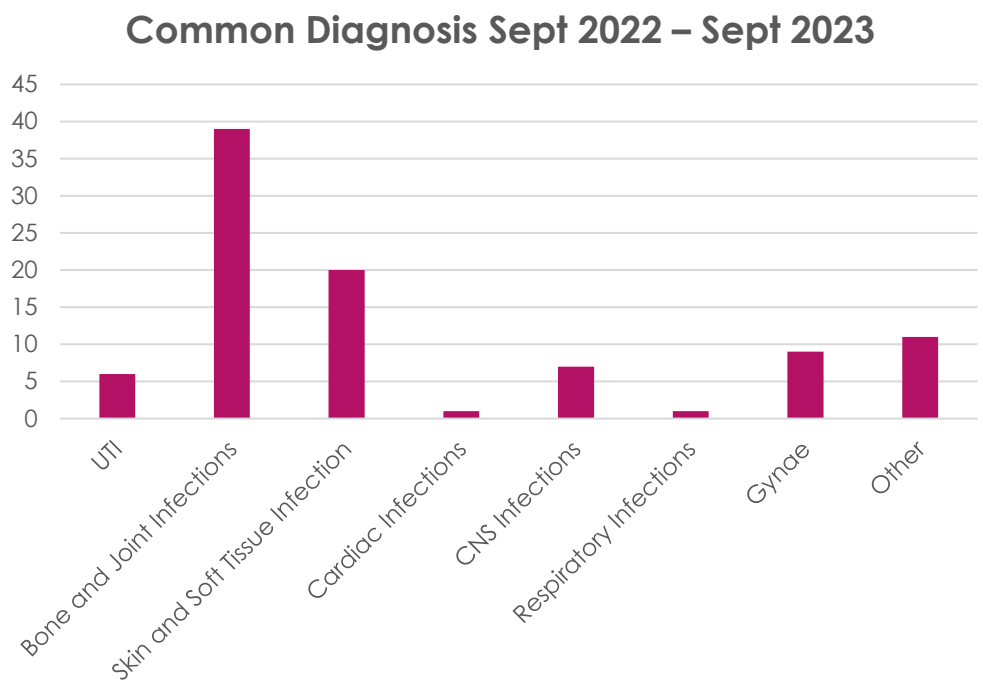


- **OPAT Service Providers:**
- Community Intervention (CIT)
- TCP
- Recovery at Home Ireland (RAHI)
- Point of Care (POC) Nurse provider for SOPAT
- Caredoc
- **Private Health Insurers providing OPAT**
- VHI – 2 patients used their VHI
- Irish Life – not used
- Laya – not used

Commonly Used Antibiotics 2023



Common Diagnosis



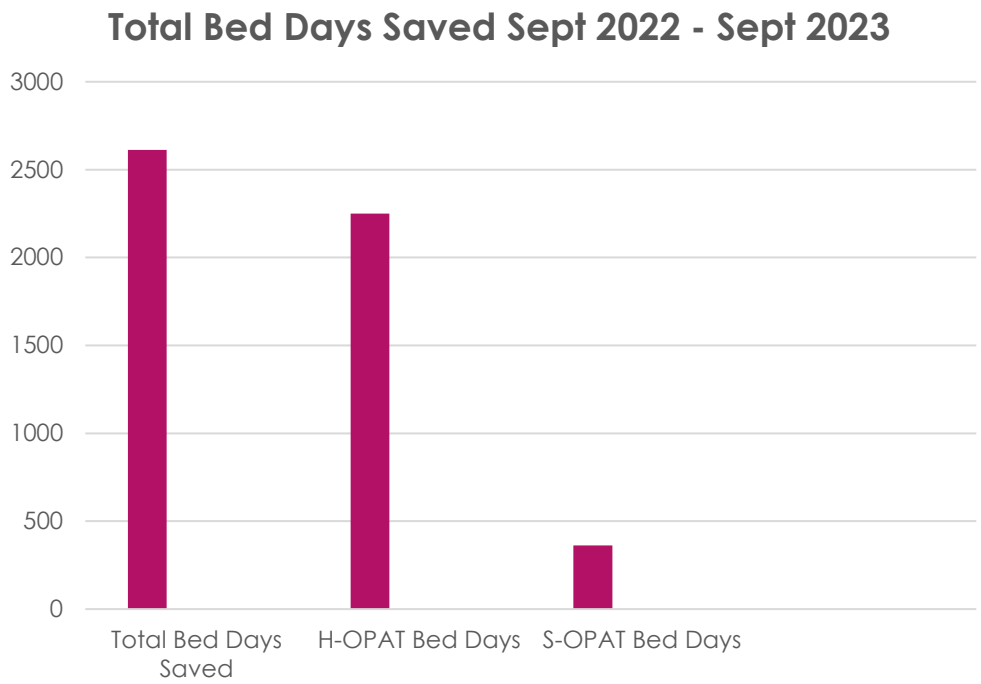
- **Other diagnoses included:**
- **Septic thrombophlebitis x 3, renal abscess, iliopsoas abscess, liver abscess, septic thrombus and MRSA in spinal collection**

Readmission Data Sept 2023

There were 8 readmissions in Sept 2023. 3 of these were OPAT related, 5 were non OPAT related.

- 2 patients for OPAT related drug reactions
- 1 patient for deranged LFTs due to antibiotics
- 1 patient for dislodged nephrostomy and hypotension.
- 1 patient admitted for low neutrophils
- 1 patient for COVID
- 1 patient for uncontrolled blood sugars
- 1 patient died on service due to CVA. RIP

Total Bed Days Saved Sept 2023



- **Total Bed Days Saved = 2551**
- **H-OPAT Bed Days Saved = 2250**
- **S-OPAT Bed Days Saved = 301**

- **Total bed days saved (2551) X Cost of bed per day (€1080) = €2.5 million**

Thank you

Any Questions?

Aoife Pearson OPAT CNM II

Acknowledgments

Acknowledgments

- Infectious Disease Team – Dr Waqas, Dr DelmonteSen, Dr Siddiqui, Dr Isack, Aarti Gupta, Sarah Fox
- Microbiology Team - Dr Fennell, Dr Bergin, Dr Prior, Dr Frost, SpRs and Registrars
- Radiology Team – Prof Torregianni, Dr Govender, Dr Brassil, SpRs, Radiographers and IR nursing staff
- Vascular Access CNM 3 – Andrea Doyle
- CIT Liaison CNM 2 – Ciara Parthiban

Urethral and Suprapubic Catheterisation

Lynn Casey, Urology ANP

Tallaght University Hospital
Ospidéal Ollscoile Thamhlachta
An Academic Partner of Trinity College Dublin

Normal Continence

Normal urinary continence and bladder control requires a complex interaction between the brain, nervous system and organs in the pelvis.

Bladder- which should remain relaxed while it is filling with urine and which will contract to expel the urine.

Sphincter: which is strong enough to prevent urine leaking from the bladder and which will relax to allow urine to be voided

A pelvic floor which is strong enough to support the bladder and help the sphincter mechanism to keep the urethra closed.

Nervous system- that is able to transmit messages accurately between brain and the spinal cord.

Brain which can interpret the message, send to the bladder and make decision, send out commands

The loco-motor ability to get to and use the toilet

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Anatomy and Physiology

The urinary system's functions include;

- Remove waste products and medicines from the body.
- Balance the body's fluids.
- Balance a variety of electrolytes.
- Release hormones to control blood pressure.
- Release a hormone to control red blood cell production.
- Help with bone health by controlling calcium and phosphorus.

The Structures of the urinary system include;

- **Meatus** - also known as the external urethral orifice, is the opening where urine exits the male and female urethra. It is where semen also exits the male urethra. The meatus has varying degrees of sensitivity to touch.

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- **Urethra** - The urethra is the tube that lets urine leave the bladder and the body. If assigned male at birth, the urethra passes through the prostate and into the penis. If you female at birth, the urethra is much shorter. It runs from the bladder to the opening above the vagina
- **Sphincters** - The urethral sphincter is a muscular structure that regulates the outflow of urine from the bladder into the urethra. There are two urethral sphincters, the external and internal urethral sphincters. When these muscles contract, the urethra narrows, and urination stops or slows.
- **Bladder neck -** The bladder neck is a group of muscles that connect the bladder to the urethra. The muscles tighten to hold urine in the bladder, and relax to release it through the urethra
- **Bladder -** The bladder is a sub peritoneal, hollow muscular organ that acts as a reservoir for urine. The bladder is located in the lesser pelvis when empty and extends into the abdominal cavity when full.
- **Ureteric orifices -** The orifices of the ureters are placed at the postero-lateral angles of the bladder, and are usually slit-like in form
- **Ureters -** carry urine from the kidneys to the bladder. Contractions in the ureter force urine away from the kidneys and into the bladder.

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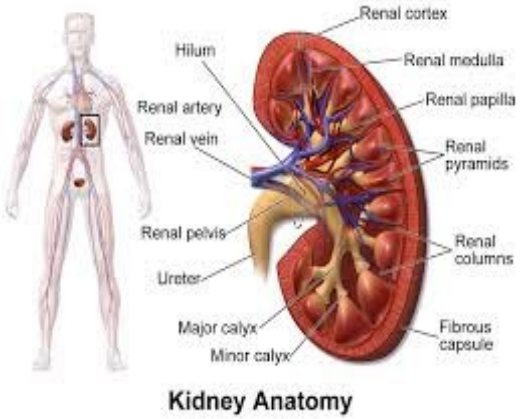
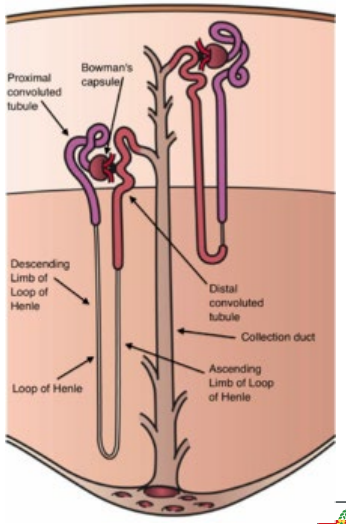
Kidneys

- They are located on the left and right in the retroperitoneal space, and are about 12 centimetres in length
- Participates in whole-body homeostasis, regulating acid–base balance, electrolyte concentrations, extracellular fluid volume, and blood pressure.
- The microscopic structural and functional unit of the kidney is the nephron. It processes the blood supplied to it via filtration, reabsorption, secretion and excretion; the consequence of those processes is the production of urine.



Kidney Anatomy



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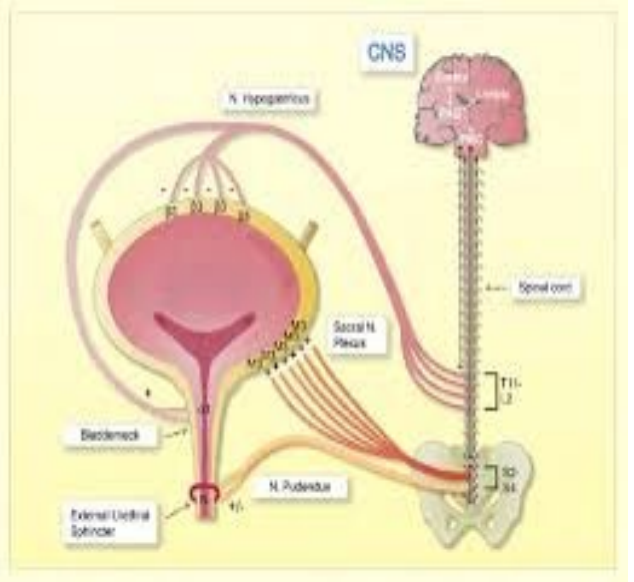
The Nervous system and bladder control

Neurological control is complex, with the bladder receiving input from both the autonomic (sympathetic and parasympathetic) and somatic arms of the nervous system:



- Sympathetic – hypogastric nerve (T12 – L2). It causes relaxation of the detrusor muscle, promoting urine retention.
- Parasympathetic – pelvic nerve (S2-S4). Increased signals from this nerve causes contraction of the detrusor muscle, stimulating micturition.
- Somatic – pudendal nerve (S2-4). It innervates the external urethral sphincter, providing voluntary control over micturition.
- In addition to the efferent nerves supplying the bladder, there are sensory (afferent) nerves that report to the brain. They are found in the bladder wall and signal the need to urinate when the bladder becomes full.

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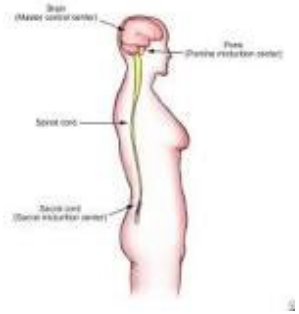
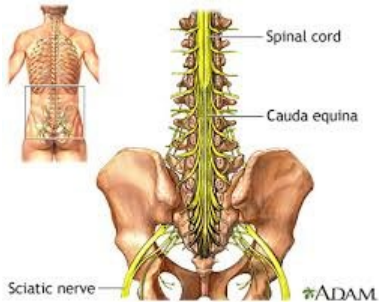
- The brainstem is located at the base of the skull. Within the brainstem is the pons, a specialised area that serves as a major relay centre between the brain and the bladder. The pons is responsible for coordinating the activities of the urinary sphincters and the bladder.
- The activation part of the brainstem is called pontine micturition centre. (The word 'micturition' originally referred to the urge to urinate, but is now often used to describe the process of urination as well).
- The cauda equine is a group of nerve roots at the lower end of the spinal cord. They provide sensation and control of movement to the lower part of the body, including the bladder and bowel.





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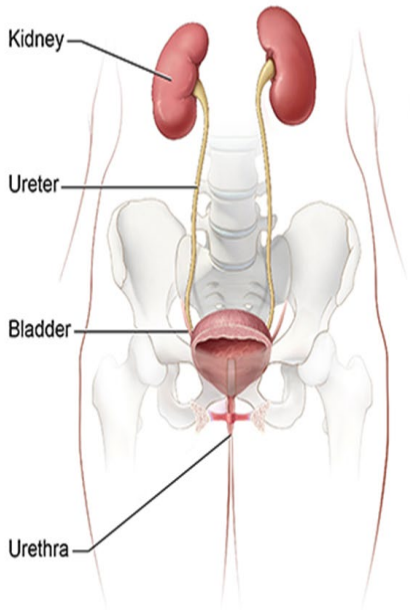
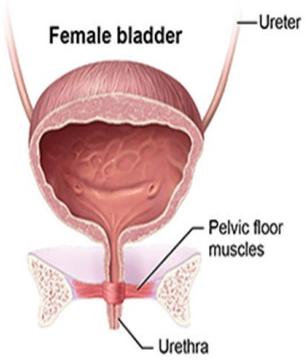
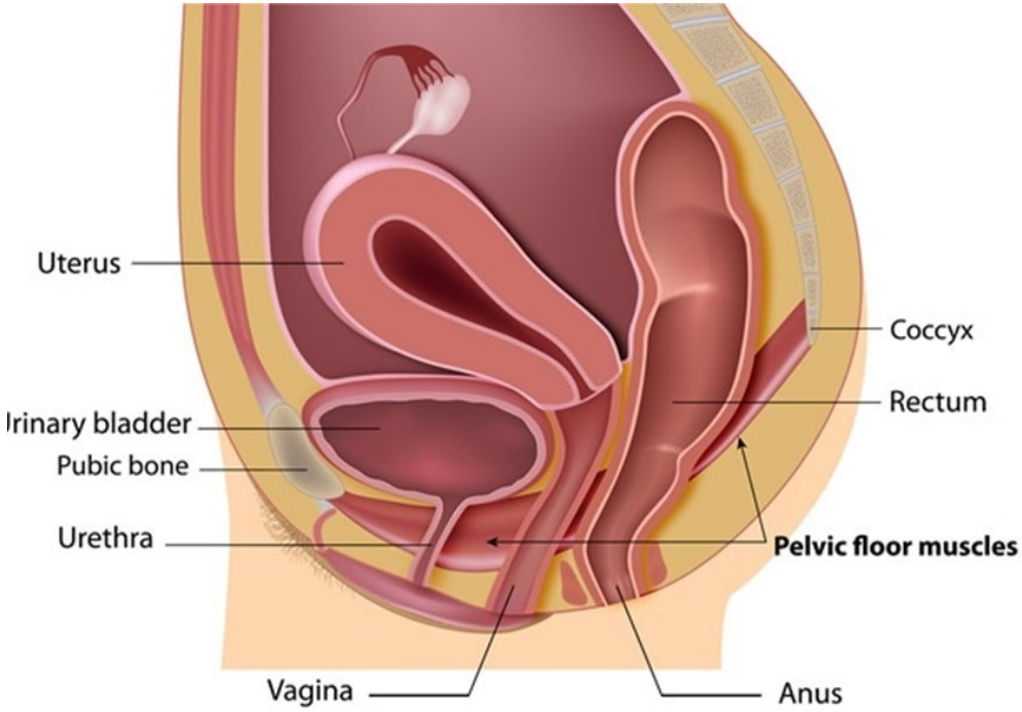
The Female Urinary System







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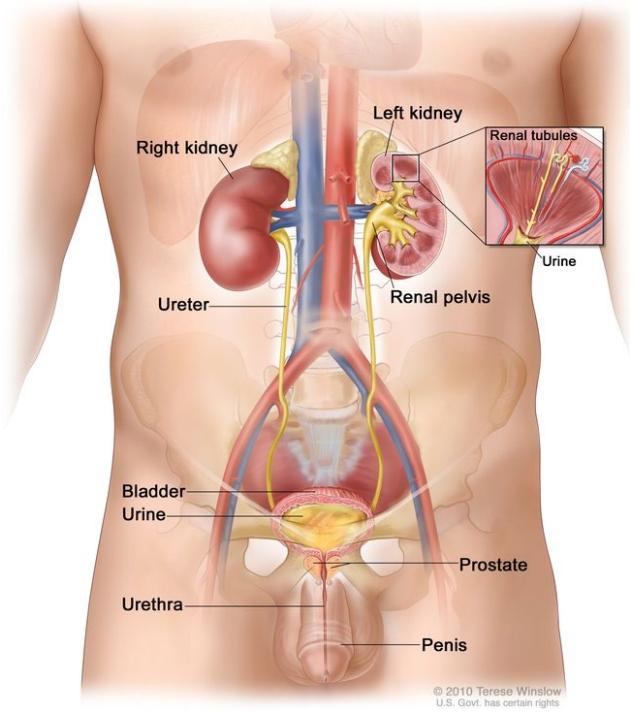
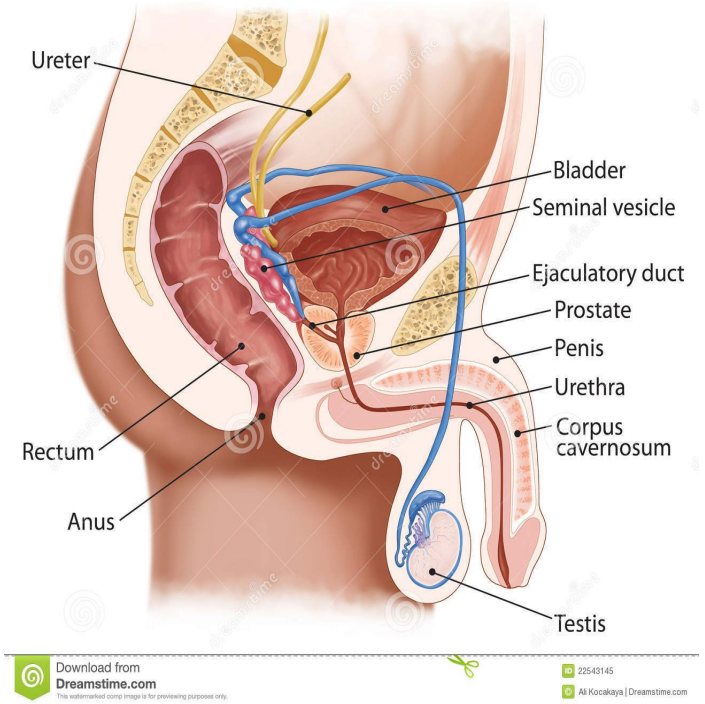
The Male Urinary System





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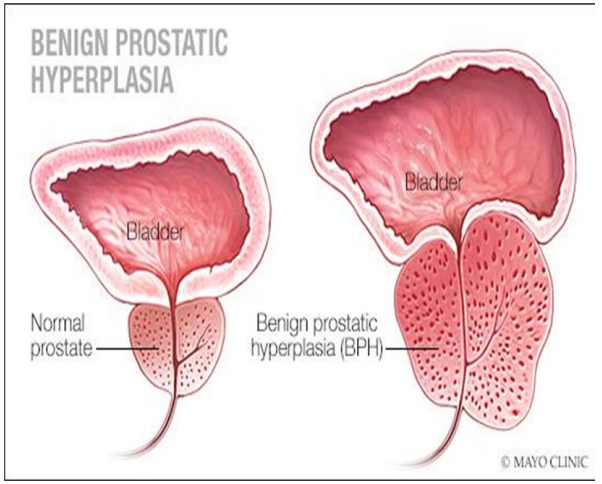
The Prostate Gland – What is it for?

- Reproduction. Healthy semen is the perfect consistency and environment for sperm transit, survival and for fertilization.
- Includes enzymes like PSA, as well as other substances made by the seminal vesicles and prostate such as zinc, citrate, and fructose
- Protects the urinary tract and sperm from bacteria and other pathogens.
- Two main growth cycles; first in puberty when it doubles and the second phase starts at around 25yrs and continues throughout the mans life.
- Cells of the prostate gland begin to multiply. These additional cells cause the prostate gland to swell, which squeezes the urethra and limits the flow of urine
- Extremely common; about half of all men between 50 – 60yrs have symptoms and approx 90% of men in their eighties.



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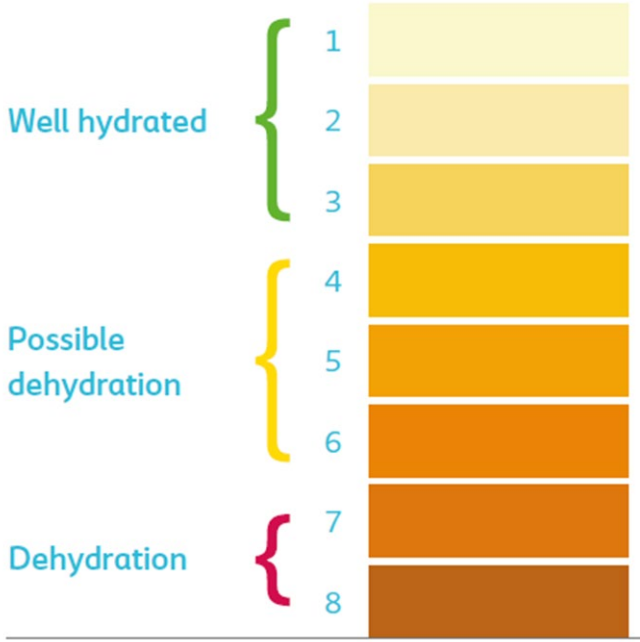
Urine Composition: What's Normal?

- The pH of urine is normally around 6.2 with a range of 5.5–7.0. A high dietary protein and alcohol intake leads to lower pH, while vegetables and fruit bring about a more alkaline pH.
- mainly made of water, salt, electrolytes such as potassium and phosphorus, and chemicals called urea and uric acid.
- Regular urine colour ranges from clear to pale yellow. Foods such as beets can alter colour. Some urinary tract infections can turn urine milky white. Kidney stones, some cancers and other diseases sometimes make urine look red due to blood.
- Urine has an odour but It should be mild and hard to notice



[1] 'Am I Hydrated Colour chart' adapted by A Yates / Coloplast 2017

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Conditions of the Urinary Tract

Benign;

- Infection
- Stones
- Strictures
- Genetic abnormalities
- Overactive bladder syndrome
- Benign prostatic hyperplasia
- Testicular torsion
- Trauma
- Luts

Oncology;

- Kidney
- Bladder
- Prostate
- Penile
- Testicular
- Ureteric
- Luts

Incontinence

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Four Types of Catheters

Female

Male

Suprapubic

Intermittent self catheterisation

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Why the need for an indwelling urinary catheter?

- ✓ **To relieve retention**
- ✓ **To obtain accurate measurement of urinary output in critically ill or post-operative patients**
- ✓ **Aid in Urology, Gynae or pelvic surgery**
- ✓ **To irrigate the bladder**
- ✓ **To administer intravesical medication**
- ✓ **To manage incontinence in patients lacking cognitive function or end of life care**
- ✓ **Permit drainage in patients with neurological conditions which cause bladder dysfunction**
- ✓ **To aid in skin healing for patients with pressure sores or wounds**
- ✓ **To perform certain diagnostics such as Urodynamics**
- ✓ **Any other reasons?**

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Consent

- Mental ability to give consent
- No coercion given
- Consent to be obtained prior to catheterisation
- If patient is under 16 consent from the parent/guardian must be obtained
- Patient must have the relevant info for informed consent
- Have the capacity to make that decision
- Emergency situations – limited to situations where the treatment is immediately necessary to save the life or to preserve the health of the patient

(HSE, Consent Policy 2022).

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Issues to consider…

- Employer has appropriate guidelines/policy/procedures in place
- Medical agreement to catheterise
- Consent is implied/verbal/written.
- All available options are discussed prior to the procedure.
- The patients best interest is paramount

(HSE Consent Policy, 2013).

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Medical History

Past medical history & current health status

Recent abdominal surgery

Acute retention (excluding retention due to catheter blockage)

Haematuria

Trauma to the pelvis or abdomen

Previous genital/urethral surgery

Congenital abnormalities

Carcinoma of the lower urinary tract/ radiotherapy to urinary tract

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Factors which may influence your decision to catheterise

- Abnormal penile/vaginal/urethral discharge and/or pain
- Abnormal penile/vaginal/urethral bleeding.
- Urinary retention
- Past history of difficult catheterisations
- History of urinary tract infections following catheterisation
- Swollen testicles
- Patient has an artificial heart valve
- Individuals sexuality & current sexual activity.

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Knowing when not to catheterise

Medical advice	When the patient withholds consent or ability to consent not assessed	If the patient has hypospadias (urethra opens on the under side of the penis or on the perineum) or a stricture
Pelvic trauma	Clinical sign of UTI - unless indicated by the medical team	Urethral stent, artificial sphincter insitu.
During first six weeks post prostate surgery	Cultural objections	Patient has a history of difficulty in catheterisation either physical or psychological.

Proceed with caution when the patient is/has.

- Taking anticoagulant therapy
- Congenital abnormalities
- Tissue fragility
- Known urethral stricture
- Prostatic enlargement
- Immunosuppressed patients/clients
- Tetraplegic/Paraplegic Patients…….

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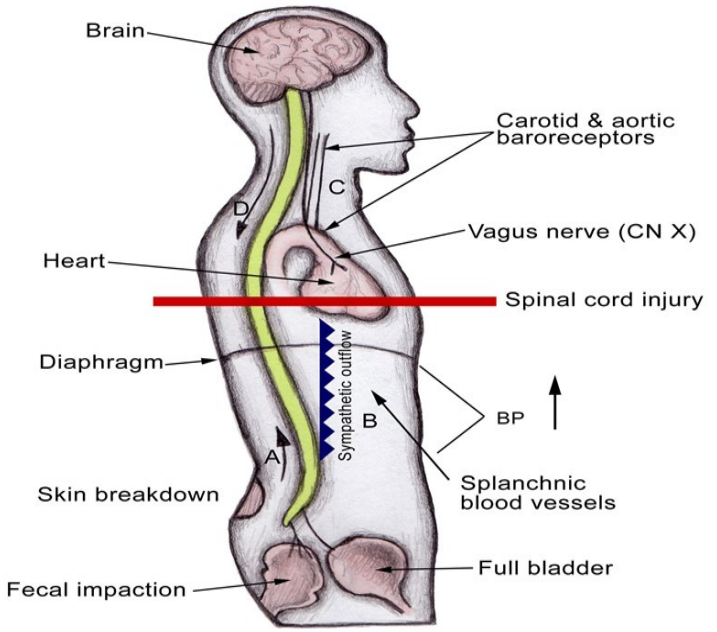
Autonomic Dysreflexia (AD)

AD is a potentially life-threatening condition, which affects people with a spinal cord injury (SCI) at or above the thoracic level 6 (T6).

A strong sensory input is carried into the spinal cord via intact peripheral nerves.

The most common origins are bladder and bowel.

This strong sensory input travels up the spinal cord and evokes a massive reflex sympathetic surge from the thoracolumbar sympathetic nerves, causing widespread vasoconstriction causing hypertension, which may cause a stroke
or even death (O' Stephenson et al 2018).



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Autonomic Dysreflexia (AD)

- Can be also caused by other conditions which cause visceral stimulation e.g. infection, loaded colon, anal fissure, ejaculation during intercourse and blocked catheters

- Signs and Symptoms: Raised BP, bradycardia, pounding headache, flushing, sweating or blotching above level of injury; pale, cold, goosebumps below level of injury

- Treatment consists of removing the precipitating cause. If hypertension persists, nifedipine 5-10mg sublingually or glyceryltrinitrate 250 micrograms sublingually (O' Stephenson et al 2018). Please revert to your clinical guidelines/policy.

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Suprapubic catheterisation

A suprapubic cystostomy or suprapubic catheter is a surgically created connection between the urinary bladder and the skin used to drain urine from the bladder in individuals with obstruction of normal urinary flow.

WHY?

- Urethral injuries.
- Urethral obstruction.
- Bladder neck masses.
- People who require long-term catheterisation and are sexually active
- After some gynaecological operations e.g. surgery for prolapsed uterus or bladder, or surgery for stress incontinence
- Long-term catheterisation for incontinence. Although this is not recommended, sometimes medical staff feel it appropriate to avoid skin problems or other medical complications.
- Some wheelchair users or people who can't self-catheterise find this method simpler to manage

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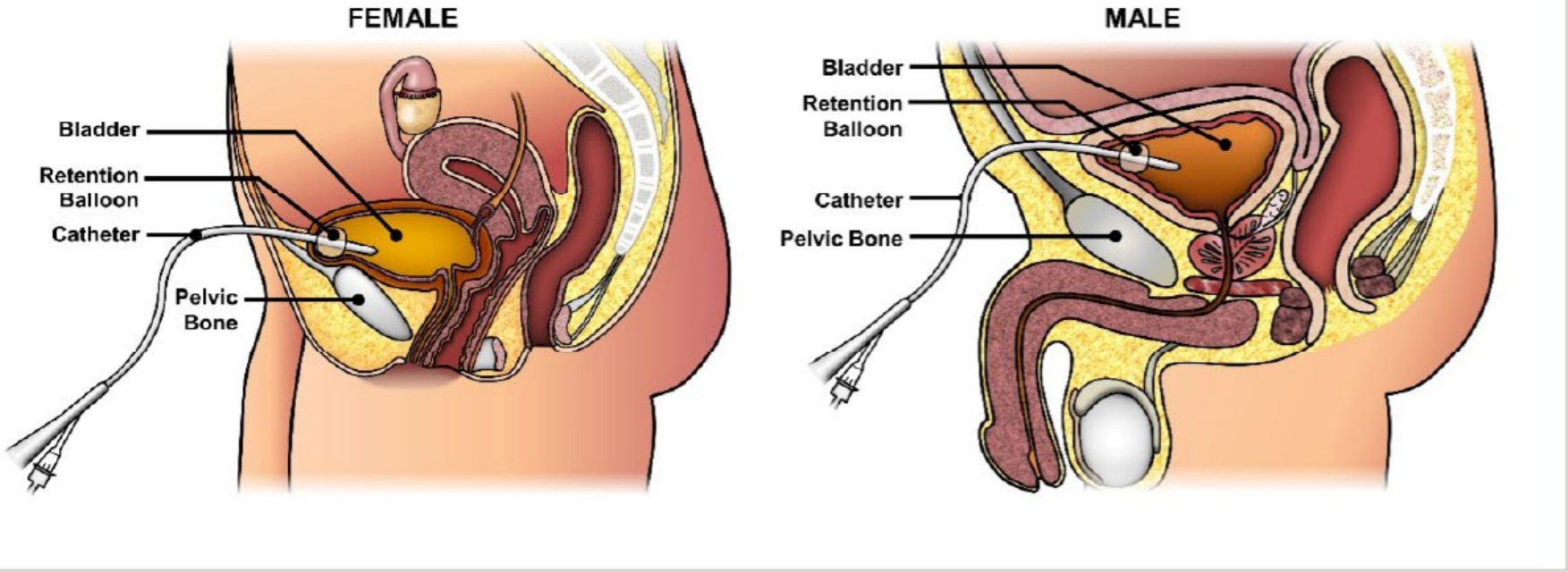
Suprapubic catheterisation

Figure 1



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Catheter Materials & Dimensions

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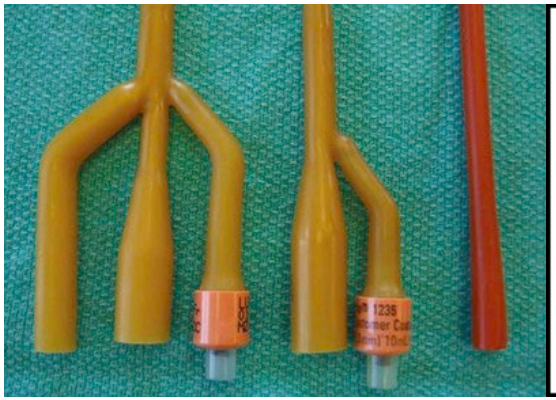
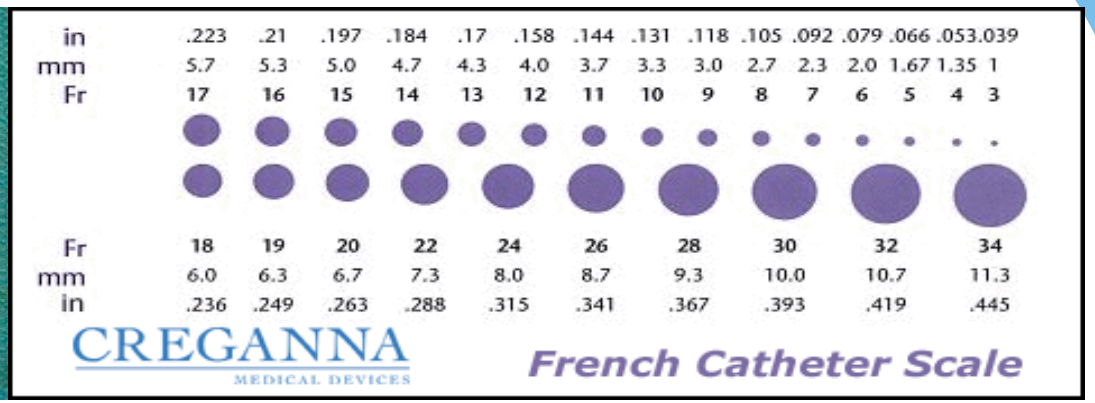
Diameter Size and Length





- The male urethra is 8 - 9 mm in diameter. The external meatus is around 8 mm in size - normally appears as a vertical slit.
- The French scale is commonly used to measure the size of a catheter. Abbreviated as FR or CH (Charrière, its inventor).
- The internal diameter of a catheter is measured in Charriere (Ch) – 1 Ch equals 1/3 mm, therefore 12 Ch equals 4 mm.
- Catheter sizes for men are between 12Ch & 16Ch.
- The bigger the catheter the more the urethra is dilated (The Royal Marsden 2015)

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Catheter Size

- **For paediatric use FR/CH: size 6-10**
- **FR/CH Size 12-14** Clear urine, no debris, no grit, no haematuria
- **FR/CH Size 16** Slightly cloudy urine, light haematuria with or without small clots, none or mild grit, none or mild debris.
- **FR/CH Size 18** Moderate to heavy grit, moderate to heavy debris. Haematuria with moderate clots
- **FR/CH Size 20-24** Used for heavy haematuria, need for flushing

(European Association of Urological nurses 2012).

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Choosing the appropriate catheter size…..

The most important guiding principle is to select the smallest size of catheter necessary to maintain adequate drainage

(Royal Marsden 2015)

A larger size catheter could cause pain, pressure ulcers, stricture formation or abscess formation

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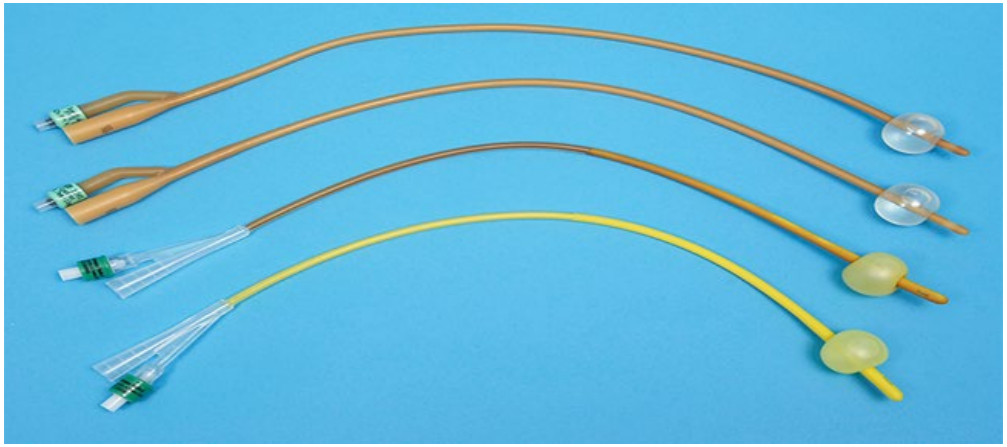
Length

- The Length of a male urethra: 17.5-22cms (Wilson 2013). The standard catheter length of 40-44cm can be used for males and females, but a shorter female length of 23-26cm can be more comfortable and discrete for some women.

- **The female length catheter should not be used for males as inflation of the balloon within the urethra can result in severe trauma.**

- Paediatric catheters are normally about 30 cm long.
  (The Royal Marsden 2015).



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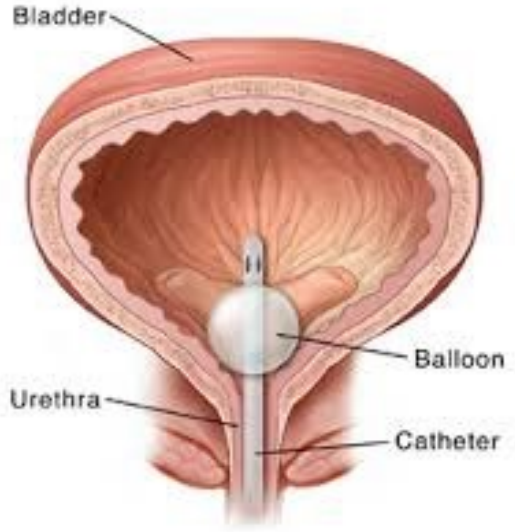
Balloon Size



- Balloon size in adult catheters: 5-15 ml H20,
- 10 ml H20 for standard use.
- Balloon size in haematuria catheters: 15-30 ml.
- The 30 ml balloon is designed specifically as a haemostat post urological procedure, and should not be used for routine catheterisation.

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Types of Catheter Material

Catheter types longer term

Catheter material	Duration	Comments
Silicone elastomer-coated latex	12 weeks	Resistance to bacterial adherence
Silicone	12 weeks	Smooth, resistance to encrustations, non-inflammatory
Hydrogel-coated latex	12 weeks	Resistance to bacterial adherence, improved patient comfort, non-inflammatory

Catheter types short term

Catheter material	Duration	Comments
PVC	14 days	Rigid, painful
Latex	14 days	Can cause discomfort and tissue trauma due to high surface friction
Teflon-coated latex	28 days	Smoother, resistance to encrustations

Anaesthetic Lubricating Gel

- Caution on the use of lignocaine in the elderly, those with cardiac dysrhythmias and those with sensitivity to the drug, as there is a danger of injury to the urothelial lining of the urethra during the procedure, allowing systemic absorption of the drug.
(BNF 2014 cited in Royal Marsden 2015)
Manufacturers caution against using lidocaine in those with epilepsy (Yates,2015)

- **KY gel or Aquagel are not** licensed for urethral use

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Equipment Required

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Equipment

- Clinically clean dressing trolley / tray
- Sterile catheterisation pack
- Appropriate catheter(s) (size 12-16 Ch)-spare
- Cleansing Solution e.g. Normal Saline/Aqueous based antiseptic.
- Anaesthetic Gel from a single use container (Stored below 25º C)
- Sterile gloves (2 Pairs)
- Disposable plastic apron
- Sterile water 10 mls
- 10ml Syringe and blunt fill needle
- 10ml syringe- deflate balloon
- Waterproof sheet
- Sterile specimen container
- Drainage bag
- Catheter stand/fixation device/strap
- Sharps Container
- Bag for waste,
- Alcohol gel
- Patients notes/ electronic notes

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Procedure (Clinicalskills.net 2017)

- Check if the patient has any known sensitivities/allergies.
- Check for any problems with previous catheterisations.
- Check medical history for any prostate complications – liaise with medical team re: suitability/continuation of catheterisation.
- Ensure privacy by closing curtains and/or the door.
- Use a Inco sheet to protect the bed or couch. Ask the patient to remove or loosen clothing and to lie down in the supine position with legs extended.

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Procedure

- Follow local policy at all times.
- Decontaminate the trolley as per Cleaning & Disinfection Guidelines for Patient Equipment and the Hospital Environment (ENV-GUI-35)
- Perform hand hygiene and don PPE.
- Prepare a sterile field, using an aseptic non touch technique throughout.
- Take to the patient's bedside and provide for patient privacy.

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Procedure

- Place the catheter, in the intact sterile inner wrapper on the sterile field.
- Retain the batch number
- Add other sterile equipment without contaminating the sterile field, such as additional sterile gloves, sterile gauze, nacl, and clinical waste bag.
- If you consider there is a risk of splashing with urine, you should put on eye/face protection
- Decontaminate your hands and uncover the patient
- Put on 1st set of sterile gloves

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Procedure

- Places sterile towel over the patients genital area, surrounding the penis.
- Select the cleansing agent for cleaning the urethral meatus according to local policy (Nacl).
- Retract the foreskin, if it is present, to visualise the urethral opening before cleaning. It is important not to fully retract the foreskin, as it may be difficult to reduce.
- Decontaminate the top of the meatus, passing over the glans towards the retracted foreskin in one sweeping movement and discard the ‘dirty’ swab. Repeat as necessary.

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Procedure

- Take the syringe containing local anaesthetic gel (2% lidocaine hydrochloride), place your finger over the end of the syringe and push the plunger to break the seal. Remove the cap from the syringe.

- Before instilling the local anaesthetic gel into the urethra, place a few drops on the urethral meatus, then insert the nozzle of the syringe into the meatal opening.

- Instil the contents of the 11-mL syringe of gel into the urethra to bring about surface anaesthesia.

- To prevent the gel from leaking out of the urethra, you will need to hold the glans penis closed.

- Using a dry swab, wipe the underside of the penile shaft several times from top to bottom, to move the gel towards the prostatic urethra. Wait 3-5 minutes for the anaesthetic gel to take effect.

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Procedure

- Remove gloves. Decontaminate your hands. Put on 2nd pair sterile gloves.
- Place the sterile specimen container between the patients thighs.

- Tear along the perforated edge of the inner packaging of the catheter to expose a few centimetres of the catheter. Using the packaging to protect the catheter, pull back the packaging as you insert the catheter.
- To straighten the first curve of the urethra, hold the penis upright and extend. Maintain this position until the catheter has been inserted.
- With a smooth, slow action, pass the catheter through the urethra and into the bladder.
- As you reach the external sphincter, there is usually a feeling of resistance; at this point, ask the patient to cough or bear down as if he wanted to pass urine, while continuing to pass the catheter into the bladder.

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Stop the Procedure if:

- Continued resistance is felt or
- the patient complains of undue pain or is actively bleeding.

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Procedure

- Insert 20 to 25 cm of the catheter (the male urethra is about 20 cm long) and discard the wrapper.

- When urine starts to flow out of the catheter, continue to insert it almost to its bifurcation. This ensures that the balloon will inflate in the bladder and not within the bladder neck or prostatic urethra.

- Slowly inflate the balloon with 10 mL of sterile water, according to the manufacturers' instructions. The patient should not feel any pain at this stage, but if he does, the balloon might still be in the urethra.

- If the patient does experience pain, follow local policy and manufacturer's instructions. You may be required to deflate the balloon, remove the catheter and start again with a new catheter. Or you may be able to deflate the balloon, advance the catheter further and reinflate the balloon.

- Once the balloon has been successfully inflated in the bladder, gently pull the catheter out until you meet some resistance; this allows you to check that the balloon was inflated in the bladder and is now in the correct position.

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Procedure

- Once the catheter is in place, attach an appropriate drainage bag or catheter valve.
- Note the amount of urine draining, and the rate. (If more than 1 litre drains, clamp the catheter and release again after 20 minutes. Repeat until there is a gradual diuresis.)
- Check that the meatus and glans are clean and **replace the foreskin**.
- Ensure the catheter is secured comfortably to minimise patient discomfort. Ensure patient comfort post procedure.
- Dispose of equipment according to local policy. Remove gloves then apron. Clean hands.

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Procedure

- Where appropriate/as required educate the patient/family regarding hygiene /catheter care.
- Document the procedure in the nursing record: Reason for catheterisation
- Include catheter size, cleansing solution, Lubricant/ anaesthetic agent, catheter type, amount of water in the balloon and date of insertion.
- Record any problems/difficulties encountered during the procedure and action taken.
- If relevant, record a review date to assess the need for continued catheterisation or date to change catheter

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Urinary Catheters are associated with significant morbidity and mortality

- Two major risks associated with catheterisation:

  1. Infection:

     Catheter Associated UTI ‘s account for 40% of all HAI’ (Royal Marsden 2015)

  2. Trauma:

     Possible on insertion and over time when the catheter is in situ

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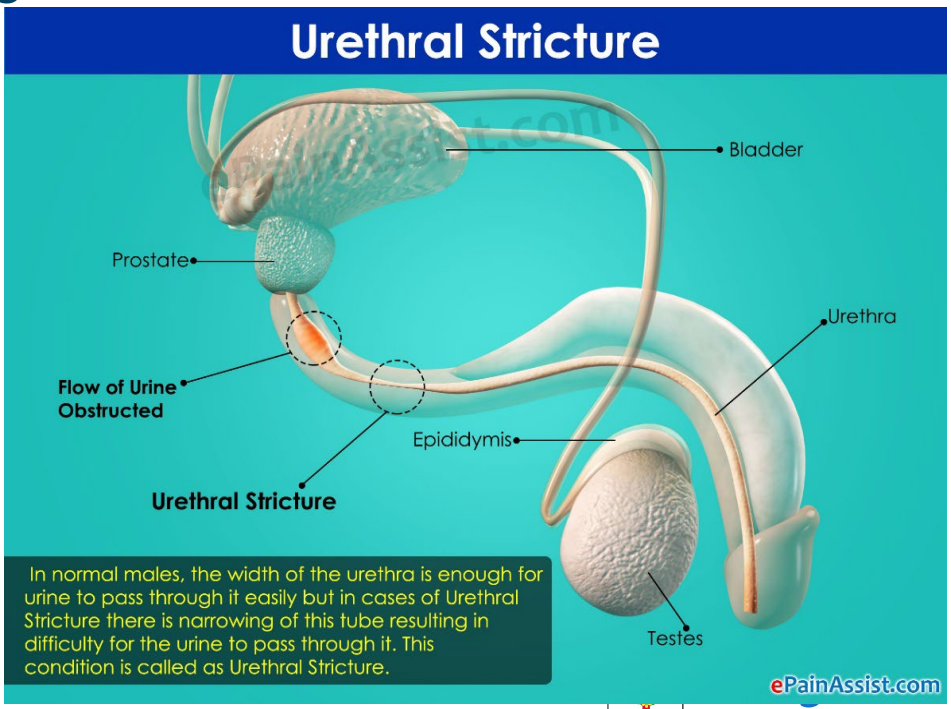
Trauma On Insertion

- Poor technique leading to:-
  - creation of false passages
  - urethral abrasion
  - Haematuria
    - - Microscopic
    - - Gross

  Inflammatory response
    - -Urethral stricture
    - -Urethritis



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Trauma induced from the catheter itself

- Pressure necrosis can occur from using-
  - too large a catheter
  - too large a balloon
  - Inadequate filling of the balloon

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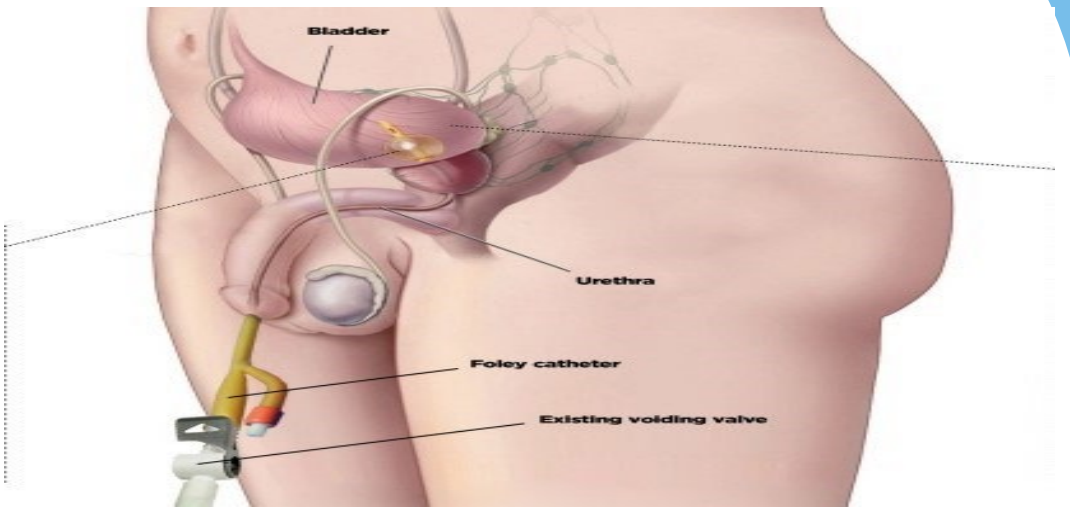
Trauma

Sites affected:



- Bladder neck.
- External sphincter.
- Bladder wall necrosis
- Inside external meatus

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Trauma – Medium to Long Term Catheterisation

Can result in:

- Bladder neck necrosis: can happen in about 10 days resulting in permanent incontinence
- Bladder calculi secondary to persistent Bacteriuria
- Persistent irritation may lead to neoplastic changes

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Pain and discomfort

Urethral discomfort – Catheter too big resulting in:

- blocked urethral ducts leading to inflammation
- Formation of peri-urethral abscess

Catheter misplaced – balloon inflated in the:

- bladder neck
- urethra.

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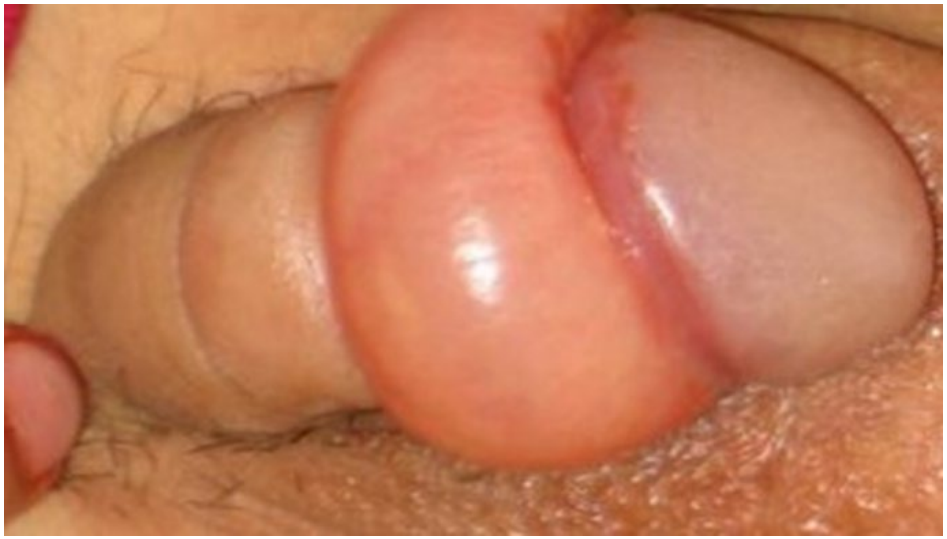
Paraphimosis
Urological Emergency!

- A condition in which the foreskin, once pulled back behind the glans penis, cannot be brought down to its original position and acts like a tourniquet - occurs only in uncircumcised or partly circumcised males.



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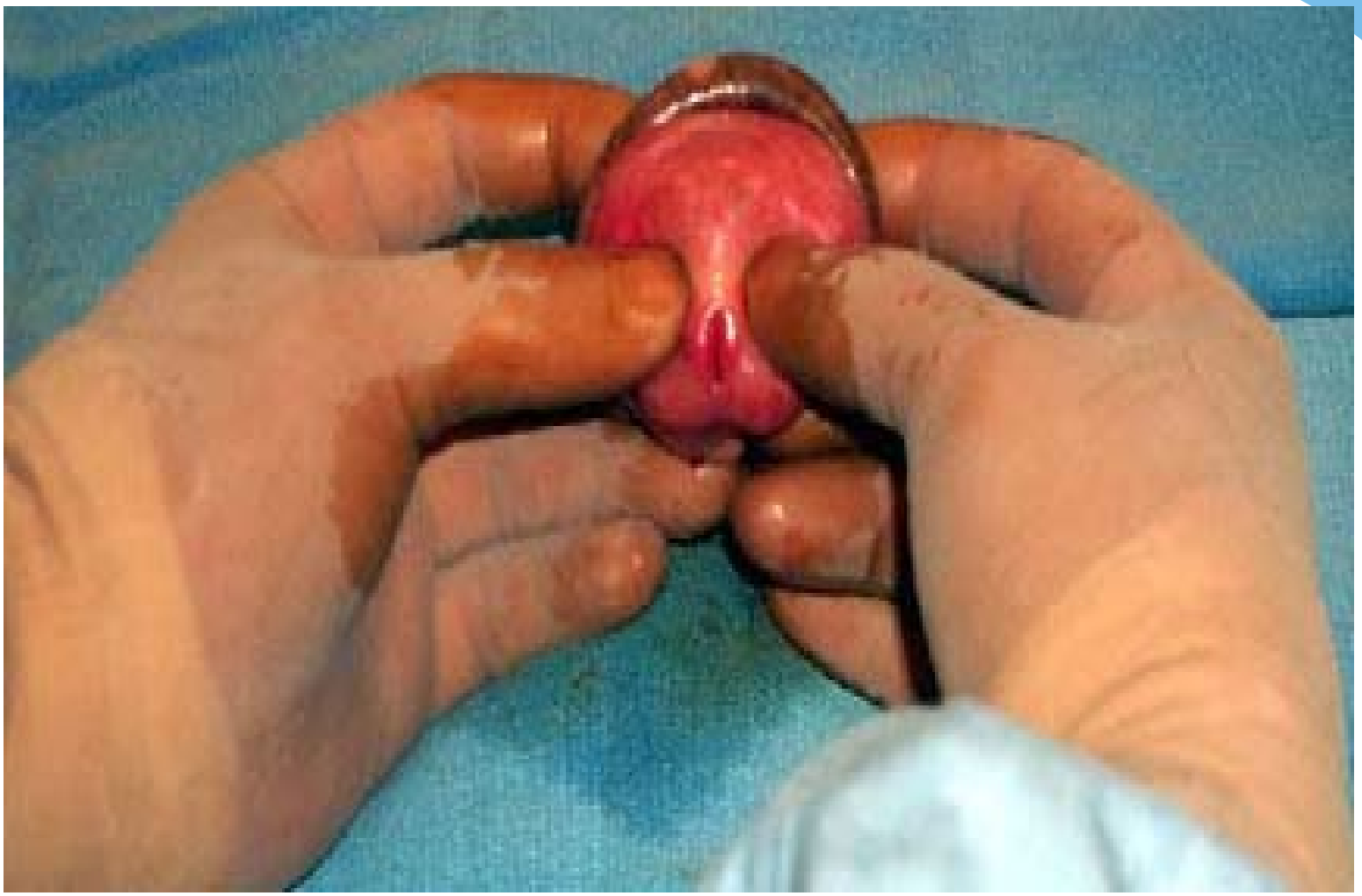

One technique of manually reducing the paraphimotic foreskin. (Brookes et al 2017 Medscape.com)

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Paraphimosis

What to do:

- Don’t let it happen !!!! But if it does you need to act quickly to reduce the swelling to avoid surgical intervention

    - Apply ice packs
    - Manual compression
    - Granulated sugar – osmotic method
    - Surgical intervention – dorsal slit, circumcision

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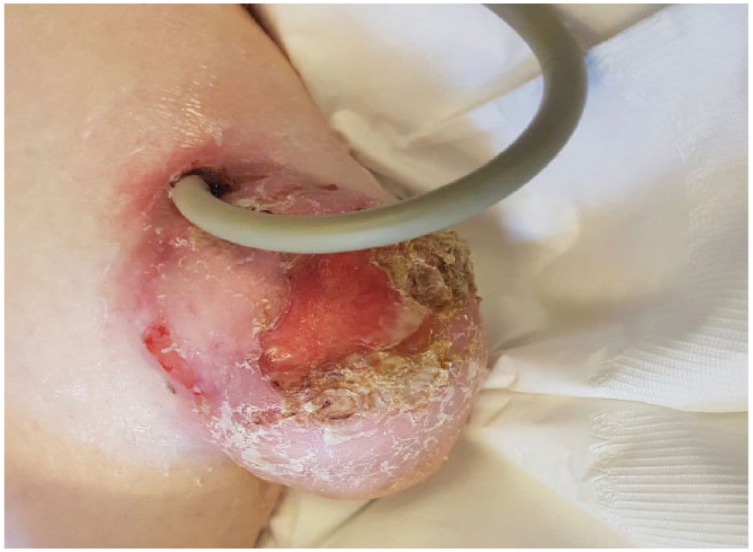
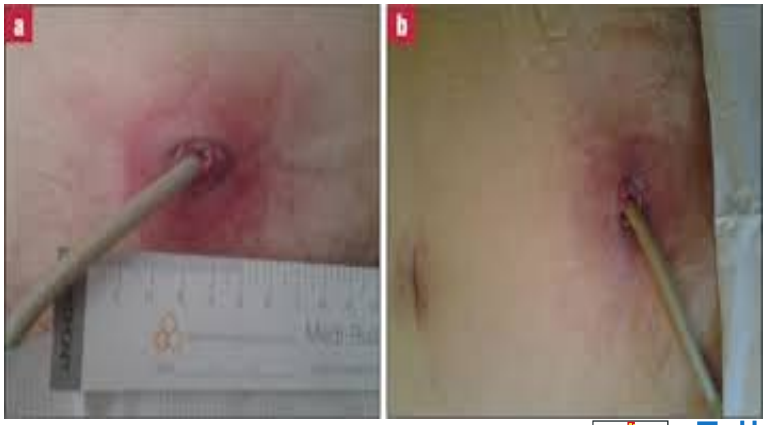
Normal SPC site

Incisional hernia secondary to SPC



Site over granulation



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Why do catheters block?

- ENCRUSTATION – presence of microorganism Proteus Mirabilis infection – contributes to urine alkalinity - above 6.8 crystals will form
- CONSTIPATION - investigate and intervene
- KINKED CATHETER TUBING
- HAEMATURIA
- DEBRIS
- MUCOUS
- BLADDER STONE
- INFECTION
- ALKALINE URINE

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Catheter Blockage and Encrustation

- Fluid management is crucial in maintaining catheter patency – though sometimes its not enough.

- Caused also by
  - Infection
  - Stasis
  - Urinary Ph.
  - Compounded by constipation.

  - Always check for debris and crystal formation on removal of old catheter – even cut the catheter tip to view inside

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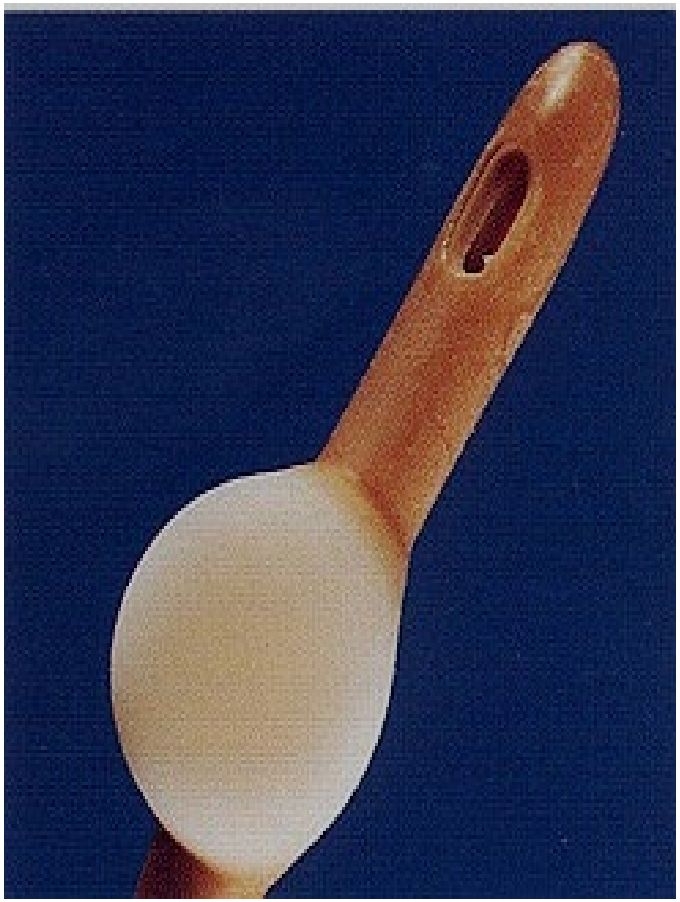
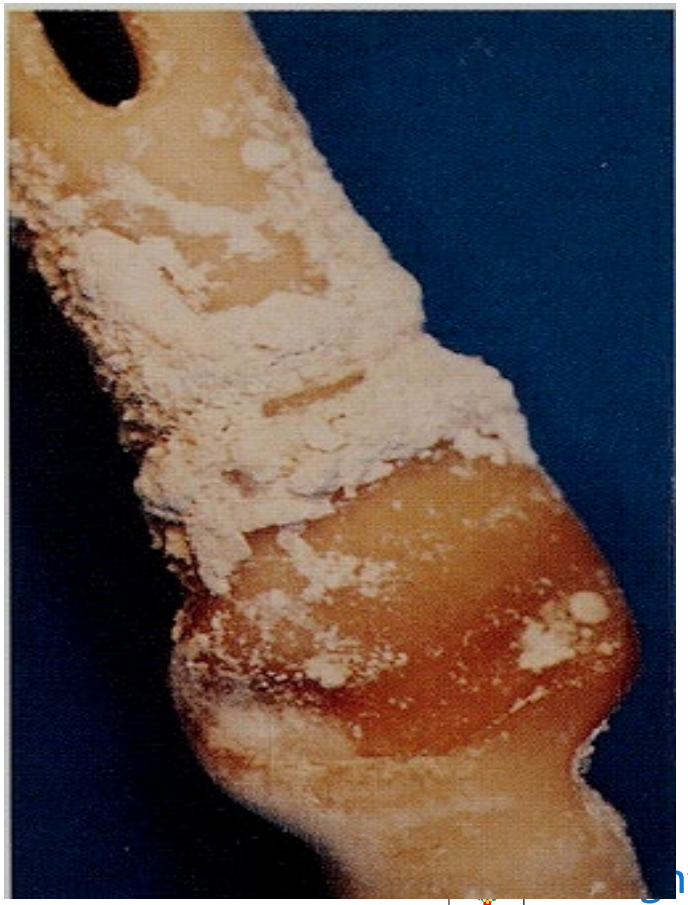
ENCRUSTED CATHETERS





Catheter Patency Solutions

- Sodium chloride 0.9% (saline) is intended to flush out urinary catheters only; may be helpful for removing small blood clots, debris and mucus.

- The use of catheter patency solutions may be appropriate following individual patient assessment and can be used as a prophylactic measure to extend the life of a catheter that may be likely to block (Yates, 2018). Patients must have a care plan in situ outlining the above.

- Citric acid solutions will dissolve crystals/encrustations (Shepherd et al 2017) , and may be recommended if the patient's catheter blocks on a regular basis (more than once a month), but should not be used without appropriate consultation

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CATHETER PATENCY/MAINTENANCE SOLUTIONS

- Uro-tainer Twin SUBY G (3.23%)
- Uro-tainer Twin SOLUTIO R (6%)
- SODIUM CHLORIDE (0.9%) 50ml & 100ml

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Appropriate fluid intake is imperative…

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Leaking/Bypassing

- Persistent leaking around the catheter due to:
- Incorrect size catheter, too large
- Incorrect size balloon – too large
- Do not replace with larger catheter it only makes it worse – down size.
- Blockage: mucous plug, infection, stone, encrustation
- Bladder spasm
- Kinking

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Catheter expulsion

- Bladder Spasm – Can be a response to a foreign body
- Symptomatic: Abdominal crampy pain (should resolve within 24 hrs) Persistent pain may be treated with anticholinergics.
- Asymptomatic: persistent catheter expulsion – can be misconstrued as the patient pulling the catheter out!!

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Problems with Catheter Removal

- Unable to deflate balloon:
  - Valve expansion/ Valve displacement -
  - Leave the syringe attached to the catheter it may deflate on its own or insert large gauge needle into the inflation channel above valve (Consult with medical personnel)
  - Do not cut the catheter it may migrate into the bladder requiring surgical removal
  - Obstruction
- Silicone catheters:
  - On deflation of balloon can develop a ridge like a doughnut at the tip – difficult to remove - re-inflating then deflating again may ease its removal.

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Minimizing the risks

- Personal hygiene: teach patient/carer about cleansing.
- Safe & effective procedures adopted by all healthcare staff
- Fluids/diet (UTI, constipation)
- Supplies/Equipment.(what, who, where, when)
- Support services (Urology Team, CNS)
- Maintenance(Change how often, catheter/bag, where when who etc.)

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Thank you, Questions?

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References

- Brookes, N and Brown, J. (2017). Paraphimosis Treatment and Management. https://emedicine.medscape.com/article/442883-treatment.
- TUH Cleaning & Disinfection Guidelines for Patient Equipment and the Hospital Environment (ENV-GUI-35)
- European Association of Urology Nurses (2012). Catheterisation Indwelling catheters in adults – Urethral and Suprapubic. http://nurses.uroweb.org/guideline/catheterisation-indwelling-catheters-in-adults-urethral-and-suprapubic/
- Holroyd, S. (2017). Journal of Continence Nursing. A new solution for indwelling catheter encrustation and blockage. Vol 31:1
- Houghton, M. (2017). Urinary catheter Care Guidelines. NHS, Southern Health. http://www.southernhealth.nhs.uk/_resources/assets/inline/full/0/70589.pdf.
- HSE (2012). National Consent Policy. https://www.hse.ie/eng/services/list/3/nas/news/national-consent-policy.pdf.
- NICE Guideline (2012). Healthcare-associated infections: prevention and control in primary and community care. https://www.nice.org.uk/guidance/cg139/chapter/1-Guidance#long-term-urinary-catheters.

Tallaght University Hospital

- Reid, J (2017). Male Indwelling Urethral Catheterization. Clinicalskills.net.

- Roger C. L. Feneley, Ian B. Hopley and Peter N. T. Wells. (2015). Urinary catheters: history, current status, adverse events and research agenda. J Med Eng Technol. 2015 Nov 17; 39(8): 459–470. Published online 2015 Sep 18. doi: 10.3109/03091902.2015.1085600

- Royal College of Physicians of London (2008). Chronic spinal cord injury: management of patients in acute hospital settings. Publisher: Royal College of Physicians (RCP). London.https://www.evidence.nhs.uk/Search?om=[{"ety":["Guidance"]},{"ety":["Policy and Strategy"]}]&q=Autonomic+dysreflexia&sp=on..

- Royal Marsden Manual of Clinical Nursing procedures. (2015) Ninth edition. Edts; Dougherty, L; Lister, S. and West- Oram, A. John Wiley: Chichester, UK.

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- Shepherd, A; Mackay. W; Hagen, S. (2017). Washout policies in long-term indwelling urinary catheterisation in adults Cochrane Incontinence Group Copyright © 2017 The Cochrane Collaboration. Published by John Wiley & Sons, Ltd.
- Stephenson, R and Berliner, J. (2018). Autonomic Dysreflexia in Spinal Cord Injury. Medscape. https://emedicine.medscape.com/article/322809-overview.
- Talati, J. (1989). Urethral Dilation. Journal of Pakistan Medical Association. March 1989. http://www.jpma.org.pk/full_article_text.php?article_id=5590.
- Wilson M (2013) Catheter lubrication and fixation: interventions. *British Journal of Nursing*; 22: 10, 566-569.
- Yates, A. (2015). Selecting Gel types for urinary catheterisation insertion. Nursing Times.
- https://www.nursingtimes.net/clinical-archive/continence/selecting-gel-types-for-urinary-catheter-insertion/5087044.article.

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