



Hertfordshire and
West Essex Integrated
Care System

Good Practice Guidance High Risk Medicines

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High Risk Medicines

- Some medicines are considered 'high risk' because the potential side effects mean appropriate monitoring and careful dose adjustment is required.
- In the UK, between 4 and 5% of admissions to secondary care are the result of preventable drug related events.
- Between 5 and 8% of all unplanned hospital admissions are due to medication issues.
- This figure rises to 17% in the over 65s age group

This presentation will look at:

- Anticoagulants, digoxin , insulin , antipsychotics in dementia, lithium and cytotoxic medicines



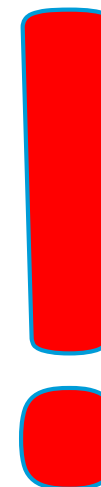
Anticoagulants

- Anticoagulants are medicines that **help prevent blood clots** – they reduce the chance of developing serious conditions such as strokes and heart attacks.
- Warfarin –commonly used in the past.
- In recent years, several new oral anticoagulants have been introduced, also known as direct oral anticoagulants (DOACs).
- The DOACs differ from warfarin:
 - No need for regular INR monitoring
 - Standardised dosing due to more predictable mechanism of action
 - Quicker onset of action
 - Fewer drug and food interactions



Anticoagulants – Side effects

- The main side effect of anticoagulants is bleeding, because these medicines increase the time it takes for blood clots to form.
- Medical help should be sought if the resident experiences any of the following signs and symptoms:
 - Passing blood in urine
 - Black stools or blood in stools
 - Severe bruising
 - Prolonged nosebleeds
 - Bleeding gums
 - Vomiting blood or coughing up blood
 - Sudden severe back pain
 - Difficulty breathing or chest pain
 - Heavy or increased menstrual or vaginal bleeding



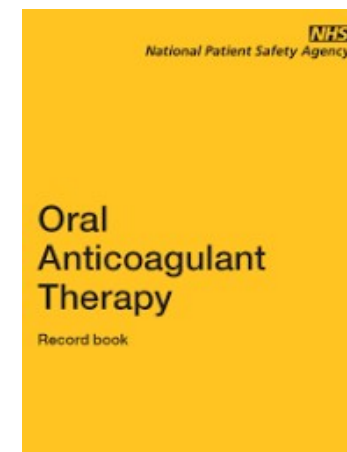
Warfarin

- Requires regular blood tests to measure the amount of anticoagulation effect from warfarin.
- The blood test checks the international normalised ratio (INR) which is a numerical scale to measure how long it takes for the blood to clot.
- Depending on the medical condition, a target INR range will be set.
- The anticoagulation team will advise about any adjustments in doses.
- The frequency of blood tests may increase if the resident is unwell or starts taking a new medicine.
- Avoid cranberry juice and alcohol.
- Try to be consistent with what you eat and drink, aim for consistency with foods containing high levels of Vitamin K.



Warfarin – Care Planning and Risk Assessment

- All communication regarding INR results should be kept with the resident's yellow book.
- It is essential that there is a safe system to ensure that the advised dosage is always checked prior to administration of a dose.
- If the resident is transferred to another care setting, the yellow book, dosing schedule, and a copy of the MAR chart must be sent with the resident.
- Take warfarin at the same time each day.
- Remember, EVERY time warfarin is administered, cross check the last INR result, when the next blood test is due and the current dose.
- Make an accurate record of how much warfarin is administered each time (e.g. '2mg') – use the MAR chart or specify on additional forms.
- If a resident takes too much / too little warfarin, seek medical advice.



DOACs: Apixaban, Dabigatran, Rivaroxaban, Edoxaban

- There is no INR monitoring with these anticoagulants.
- Annual blood tests are done to monitor how well the kidney and liver are working. Tests may be done more often if the resident becomes ill or has kidney problems.
- The dose prescribed will depend on the resident's body weight and how well the kidneys are functioning.



DOACs– Care Planning and Risk Assessment

- Care must be taken to ensure that doses are given as prescribed.
- Anticoagulant effect of DOACs fades after 12 to 24 hours after the last dose. Omitting/delaying doses could lead to a reduction in anticoagulant effect, resulting in a higher risk of blood clots.
- Usually given once or twice a day, depending on why they are prescribed.
- The action to be taken if a resident refuses or misses a dose should be recorded in the resident's care plan e.g. contacting the pharmacist for advice about taking the next dose and informing the GP.



Digoxin

- Digoxin is used to treat fast and erratic heart rhythms such as atrial fibrillation, atrial flutter and in heart failure.
- The dose is taken once daily, usually in the morning.
- Digoxin has a narrow therapeutic index, which means there is little difference between toxic and therapeutic doses.
- Symptoms of digoxin toxicity – nausea, vomiting, diarrhoea (occasionally), loss of appetite, palpitations, confusion, dizziness and blurred vision. If toxicity is suspected then the GP should be contacted.
- If pulse measurements are to be taken:
 - Only to be done if this has been agreed with the prescriber and forms part of that individual's clinical management plan
 - Decisions made regarding pulse monitoring and its frequency should be made on a case-by-case basis



Insulin



- Insulin is a hormone which lowers blood glucose levels.
- Insulin must be given at the right dose, right frequency, right timing in relation to meals, by the right method, and the regime tailored to the resident.
- CQC states that you should have a person-centred care plan for anyone using insulin.
- Residents taking insulin should have their blood glucose levels checked and recorded as directed by medical staff and their personal care plan. It should also state the 'normal' blood glucose level for the resident and what actions to take if levels go too low (hypoglycaemia) or too high (hyperglycaemia).
- Insulin not in use should be stored in the fridge and insulin in use (e.g. opened pen) should be stored at room temperature for a number of days (as per manufacturers instructions, usually 4 weeks).
- Common injection sites include upper arms, thighs, buttocks and abdomen - record the site at which the insulin was administered, this will help ensure the injection site is rotated.
- Annual diabetes review to include – foot care, medications, nutrition/diet, monitoring (blood pressure, urine, blood test).
- Remember, when transcribing or recording information about insulin, ensure the word 'units' is used, not any abbreviation.



Hypoglycaemia

- Blood glucose levels below 4mmols/L
- Symptoms: feeling shaky, hunger, blurred vision, headaches, going pale, sweating, tiredness, lack of concentration, mood swings



- Risk factors: reduced carbohydrate intake (e.g. missed meal/snack), vomiting, increased physical activity, or insulin given at wrong time/wrong dose



Hypoglycaemia

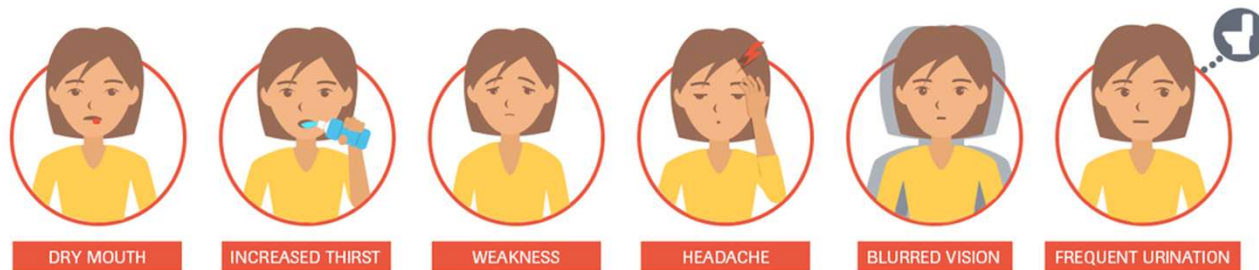
Treatment:

- 15g fast acting carbohydrate e.g. 4 jelly babies, 200mL orange juice, 150mL 'regular' fizzy drink, 4 Glucose tablets, 1½ tubes Glucogel etc. Remember to consider if the patient is awake, whether able to eat/drink safely and if they are confused/agitated
- Wait 15 minutes and re-check the patient's blood glucose level, if still below 4.0 mmols/L repeat the administration of a fast acting carbohydrate again, for up to three cycles.
- Once blood glucose concentration is above 4 mmol/L, give a long-acting carbohydrate to prevent blood glucose from falling again e.g. two biscuits, one slice of bread etc.



Hyperglycaemia

- Blood glucose levels consistently above 15 mmols/L
- Symptoms: increased thirst, increase in passing of urine, blurred vision, dry mouth/skin, tiredness, hot flush, confusion



- Risk factors: refusing insulin, missed/delayed dose of insulin, increased oral intake, infection/illness, taking steroid medicines



Hyperglycaemia

Treatment: adjusting insulin dose, hydration and changing diet

Very high blood sugar levels can cause life-threatening complications:

- Diabetic Ketoacidosis (DKA) – body breaks down fat as a source of energy, which can lead to a diabetic coma. This tends to affect people with type 1 diabetes.
- Hyperosmolar Hyperglycaemic State (HHS) – severe dehydration caused by the body trying to get rid of excess sugar. This tends to affect people with type 2 diabetes.
- Contact GP/diabetes team immediately if feeling or being sick, abdominal pain, rapid, deep breathing, signs of dehydration (headache, dry skin, weak/rapid heartbeat), difficulty staying awake.



Antipsychotics in Dementia

- People with dementia may experience – aggression, agitation, hallucinations, shouting, walking about, hoarding, apathy and delusions, referred to as non-cognitive symptoms in dementia.
- Antipsychotics in dementia should only be used for those at risk of harming themselves or others, or experiencing agitation, hallucinations or delusions that are causing **them severe distress** as recommended in the NICE guidelines.
- Whilst it is important to manage these symptoms, inappropriate prescribing of antipsychotic medication can have significant consequences for the person and non-pharmacological measures should be considered as a first line - see [Reducing antipsychotic prescribing for non-cognitive symptoms in dementia: A practical guide for GPs and care practitioners](#)
- Antipsychotics for behavioural and psychological symptoms of dementia (BPSD) should be used for maximum 6 weeks and then reviewed by the GP/Pharmacist.
- Risperidone and haloperidol are the only licensed antipsychotics for BPSD. It should only be continued when there is a risk of self-harm to the patient or harm to care givers. If there is no risk of harm, then non-pharmacological interventions should be first choice of treatment.



Antipsychotics in Dementia

- Common side effects of antipsychotics are:
 - Feeling sleepy or less alert (although some people have difficulty falling or staying asleep)
 - Headache
 - Changes in appetite and weight gain
 - Symptoms like those of Parkinson's disease. These may include slowness or difficulty in moving, a sensation of stiffness or tightness of the muscles (making the person's movements jerky), and sometimes even a sensation of movement 'freezing up' and then restarting. The person may develop a slow shuffling walk, a tremor, increased saliva or drooling, and a loss of expression on the face.
- **Increased risk of stroke and a small increased risk of death** in patients prescribed antipsychotics for the treatment of non-cognitive symptoms in dementia.
- If antipsychotics are to be used in dementia use the **lowest effective dose for the shortest possible time**.
- Regardless of antipsychotic use, the care plan should include the use of person-centred, non-drug measures to manage the symptoms.



Antipsychotics in Dementia – Drug monitoring & De-prescribing

- Blood pressure and body mass index (BMI) should be regularly checked.
- Annual Blood tests include Full blood count (FBC); renal function test (U&E), Liver Function test (LFT); blood glucose test (Hba1c); cholesterol check (serum lipid); prolactin test.
- It is important to identify the actual reason of unusual behaviour and a behavioural chart can be used for this purpose.
- Clear record of behaviours in ABC chart can help prescriber to decide whether antipsychotic can be de-prescribed or not.
- Antipsychotics are usually reduced to a lower dose before stopping. If symptoms re-emerge in the process, prescribers sometime re-start the medicine.
- Patient's BPSD symptoms could be due to other reasons including pain, acute infection (UTI), hunger, thirst, dehydration, constipation, sensory impairment (eyesight); over-stimulation, under-stimulation.
- Patient could be agitated due to confusion linked to the physical design of the home, communication problems, lack of inhibition, visual hallucination, delusions etc.
- Non-pharmacological interventions are the first choice of treatment for BPSD. These include music therapy, aromatherapy, validation therapy etc.



Lithium- Monitoring, administration & toxicity.

- Lithium is prescribed for the management of mania, hypomania, bipolar depression, recurrent depression and bipolar disorder.
- Lithium must always be prescribed by the brand name, as different brands can be absorbed differently.
- Lithium levels are measured at least once every 3 months for the first year. It is important to do these blood tests to optimise the dose.
- Care plan should include who is responsible for lithium level monitoring. Lithium is usually taken at night, as bloods must be taken 12 hours post-dose.
- Lithium is contraindicated in cardiovascular disease, severe renal impairment, Addison's disease, untreated hypothyroidism, severe dehydration, sodium depletion.
- Lithium interacts with many medicines including diuretics, antihypertensives (ACE inhibitors & Ca-channel blockers); anti-inflammatory (NSAIDs - Ibuprofen).



Lithium- Monitoring, administration & toxicity.

- Lithium can cause many side effects including nausea, weight gain, gastrointestinal disturbances and fine tremor.
- Chronic side effects are polyuria, polydipsia, weight gain, diabetes, hypercalcaemia, hypermagnesemia.
- Lithium toxicity signs include severe thirst, severe diarrhoea, fever, loss of weight, muscle twitching, slurred speech, confusion, drowsiness, muscle twitching, shaking of hands or legs; in case of toxicity, lithium will need to be stopped and level checked immediately.



Corticosteroids

- Steroids, also called corticosteroids, are anti-inflammatory medicines used to treat a range of conditions.
- Steroids are used to in the management of asthma, chronic obstructive pulmonary disease (COPD), hay fever, eczema, arthritis, inflammatory bowel disease, multiple sclerosis.
- Steroids are a man-made version of hormones normally produced by the adrenal glands.
 - When taken in doses higher than the amount your body normally produces, steroids reduce redness and swelling (inflammation). This can help with inflammatory conditions such as asthma and eczema.
 - Steroids also reduce the activity of the immune system, which is the body's natural defence against illness and infection.
- Steroids are available in several forms:
 - Tablets, syrups, liquids – prednisolone
 - Inhalers – beclomethasone, fluticasone
 - Nasal sprays – beclomethasone, fluticasone
 - Creams, ointments - hydrocortisone
 - Injections (given into joints, muscles or blood vessels) – methylprednisolone



Corticosteroids



Most steroids are only available on prescription but a few (such as some creams or nasal sprays) can be bought from pharmacies and shops.



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Corticosteroids – Side Effects

	Tablets	Inhalers	Nasal sprays	Creams/ointments
Examples	Prednisolone Dexamethasone Hydrocortisone	Beclomethasone Budesonide Fluticasone Mometasone	Beclomethasone Budesonide Fluticasone Mometasone	Hydrocortisone Beclomethasone Betamethasone (Preparations can contain a combination of antimicrobials)
Side effects	Indigestion/heartburn Increased appetite/weight gain Increased risk of infections Difficulty sleeping High blood sugar Mood swings Weakening of bones/osteoporosis Cushing's syndrome Glaucoma/cataracts	Sore mouth/throat Hoarse voice Cough Oral thrush Nosebleeds	Stinging/burning in nose Dryness/crustiness in nose Itchiness/redness swelling in nose, nosebleeds Dry/irritated throat Unpleasant taste	Burning/stinging on application Thinning of skin Worsening/spreading of a skin infection Stretch marks Contact dermatitis Excess hair growth

Corticosteroids – Side Effects

- Steroids do not tend to cause significant side effects if they are taken for a short time or at a low dose.
- The side effects will usually pass once you finish the treatment, but do not stop taking your medicine without speaking to your doctor. Stopping a prescribed course of medicine can cause further unpleasant side effects (withdrawal symptoms).
- Usually best to take steroid (tablets) with food to reduce the risk of stomach irritation.
- Stopping steroids suddenly can cause your adrenal gland to stop working (adrenal insufficiency) and your original symptoms may come back suddenly. Symptoms include:
 - feeling extremely tired
 - feeling and being sick
 - dizziness
 - loss of appetite and weight loss



Cytotoxic Drugs - Administration, monitoring and serious side effects

- A cytotoxic medicine is defined as any medicinal product that possess hazardous properties such as toxic, carcinogenic, mutagenic and toxic for reproduction.
- Cytotoxic medicines include methotrexate, fluorouracil, hydroxycarbamide, azathioprine and mercaptopurine. These medicines are disease modifying drugs and can affect how the body's cell grow and reduce the activity of the immune system.
- Care home staff involved in the administration of these drugs must be careful and follow strict guidelines. They should be provided adequate training and be aware of the associated risks.
- Cytotoxic drugs must have a clear dose and should never be dispensed in a monitored dosage system (MDS). Carer(s) should always wear personal protective equipment when administering these medicines.
- Tablets should never be crushed, chewed or broken. GP/prescriber should be informed if patient refuses their medicine.
- Regular blood tests are required to monitor these drugs and the prescriber must be informed regarding any new or worsening symptoms after starting cytotoxic drugs.
- These drugs need to be stopped if the resident experiences serious side effects. These side effects include severe skin rash that causes blistering, persistent cough, pain, difficulty breathing or breathlessness, skin rash and fever with swollen glands, sore throat, fever, chills or muscle aches, severe allergic reaction, whites of the eye becoming yellow, new unexplained bleeding or bruising, severe and continuing diarrhoea, chickenpox and shingles.



Cytotoxic Drugs – Methotrexate, Dutasteride & Finasteride.

- Methotrexate should be taken as a single dose: once a week on the same day each week.
- Only one strength (2.5mg) of the tablet should be prescribed and dispensed. Strength should be confirmed with prescriber if it is not 2.5mg.
- On the MAR chart, care home staff should strike out six days of the week when a dose is not given.
- Folic acid is commonly prescribed alongside methotrexate to reduce side effects of treatment. It should not be taken on the same day as the methotrexate.
- Methotrexate is contraindicated with live vaccines, anti-inflammatory drugs (NSAIDs), retinoids (acitretin), antipsychotic (olanzapine) and other hepatotoxic, myelotoxic and nephrotoxic drugs.
- Caution is required for antiepileptics: enzyme inducing ones, antibacterials (ciprofloxacin, doxycycline, sulfonamides, tetracycline, neomycin), antimalarials, cardiac glycosides (digoxin), ciclosporin, corticosteroids, immunosuppressants, leflunomide and theophylline.
- Finasteride and Dutasteride both can be absorbed through the skin and can affect the normal development of a baby. Due to this women of childbearing age should not handle these tablets without wearing gloves / appropriate PPE.
- Women who are pregnant should not handle the above medicines. They should not also handle any other teratogenic, cytotoxic medicine such as thalidomide.



Further Resources

1) PrescQIPP Medicines use in care homes e-learning package

An e-learning package on medicines use in care homes is available for care home staff, and covers a range of areas including some of those highlighted above. The e-learning package is endorsed by NICE and supports the implementation of recommendations in the NICE guideline on managing medicines in care homes. The package is available via <https://www.prescqipp.info/>. Details for registering will be provided to the care home manager/s.

2) NICE Guidelines for Managing Medicines in care homes

This guideline covers good practice for managing medicines in care homes. It aims to promote the safe and effective use of medicines in care homes by advising on processes for prescribing, handling and administering medicines. It also recommends how care and services relating to medicines should be provided to people living in care homes.

[1 Recommendations | Managing medicines in care homes | Guidance | NICE](#)

3) CQC medicines guidance

CQC have developed guidance on various topics relating to medicines use within care homes. The guidance can be found via the following website <https://www.cqc.org.uk/guidance-providers/adult-social-care/medicines-information-adult-social-care-services>.



Any Questions?



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Quiz Question 1:

- Which of the following medicine must be prescribed by brand:
 - a) Methotrexate
 - b) Lithium
 - c) Olanzapine
 - d) Azathioprine



Quiz Question 2:

- Which of the following medicine is taken weekly?
 - a) Lithium
 - b) Methotrexate
 - c) Amoxicillin
 - d) Sulfasalazine



Quiz Question 3:

- Dementia patients who are taking antipsychotics must have it reviewed regularly, how often should reviews be carried out?
 - a) 4 weekly
 - b) 6 weekly
 - c) 6 monthly
 - d) Annually



Quiz Question 4:

- Which of the following medicine require more frequent blood (INR) monitoring?
 - a) Apixaban
 - b) Rivaroxaban
 - c) Warfarin
 - d) Dabigatran



Quiz Question 5:

- Which of the following statements are True?
 - a) Blood glucose level below 2mmol/L can be considered hypoglycaemia (low sugar)
 - b) Blood glucose above 15mmol/L can be considered as hyperglycaemia (high sugar)
 - c) Diabetic ketoacidosis is a life-threatening condition caused by a very high level of sugar
 - d) Diabetic Ketoacidosis is a life-threatening condition caused by a very low level of sugar



Quiz Question 6:

- Which of the following drugs interact with ibuprofen?
 - a)Lithium
 - b)Methotrexate
 - c)Warfarin
 - d) All of the above



Quiz Question 7:

- Which of the following drugs is used to control methotrexate's side effects :
 - A) Ferrous sulphate
 - B) Folic acid
 - C) Calcium tablets
 - D) Ferrous Fumarate



Quiz Question 8:

- Which of the following drugs should not be handled by pregnant women?
 - A) Finasteride
 - B) Dutasteride
 - C) Thalidomide
 - D) All of the Above



Quiz Question 9:

- Which of the following drugs interacts with cranberry juice?
 - a) Apixaban
 - b) Lithium
 - c) Methotrexate
 - d) Warfarin



Quiz Question 10:

- Which of the following medicine can cause weight gain?
 - a) Olanzapine
 - b) Lithium
 - c) Prednisolone
 - d) All of the above

