

Medication Monitoring In Primary Care: Insights for Non-Medical Prescribers

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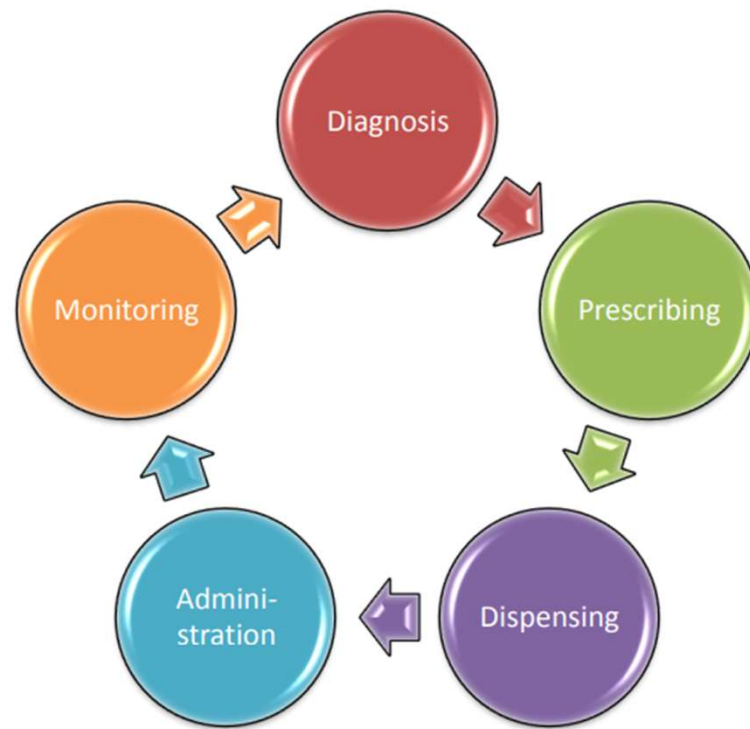
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Agenda

- What is medicine/drug monitoring?
- Implication
- Examples of drug monitoring
- Tips for NMP



Drug monitoring

- Typically refers to the measurement of drug concentration in body fluids
- Medicine safety to ensure patient is benefiting from the medication use with minimal harm caused
- Patient is not developing a medicine related problem
- Review of benefit vs risk
- Polypharmacy on the increase

Implication

- Patients
 - Benefit vs risk of harm
- Individual NMP
 - Prescribing competently
- Organisation
 - Litigation
 - Regulation

Medication safety in the NHS

At the heart of
future NHS
challenges



20%

of people over 70 years old take five or more medicines. With an ageing population and multiple chronic medical conditions these numbers will just keep increasing



600,000

non-elective hospital admissions
are due to medicines

70%

of these are preventable

5 classes of medicine
account for most admissions

NSAIDs

Antiplatelets

Anticoagulants

Diuretics

Antihypertensives



1 billion
prescriptions are issued every year
in primary care



50
million

prescribing errors



400,000
33 million

dispensing errors



2.5 million

doses of medicines are administered
every year in the average acute hospital



215,000

errors



1/2

1 million

inpatient prescriptions every year
in the average acute hospital



45,000

prescribing errors

with

550

potentially fatal



40-100

dispensing errors

2500

preventable deaths across all acute hospitals
are due to medicines



97,000

patients admitted to all acute hospitals
suffer from harm due to medicines

97% of medication errors reported to the NHS result in no or low patient harm

ACE-I & ARB

- BP and U&E
- HF → 6 monthly
- BP → 12 monthly
- Watch out for:
 - Low sodium (<132 mmol/L)
 - High Potassium (>5 mmol/L)

Creatinine increase between 20-30%; eGFR decrease more than 15%

- Remeasure renal function within 2 weeks

Creatinine increase between 30-50%; level greater than 200micromol/L; eGFR less than 30ml/min/1.73m²

- Review volume status
- Reduce dose temporarily
- Stop diuretic (if applicable)
- Stop ACEI/ARB

Creatinine increase between 50-100%; level greater than 256micromol/L; eGFR between 20-25ml/min/1.73m²

- Reduce dose
- Stop diuretic (if applicable)
- Stop ACE/ARB
- Consider specialist referral

Creatinine increase greater than 100%; level greater than 310micromol/L; eGFR greater than 20ml/min/1.73m²

Anticoagulants

- Warfarin
 - INR → 2 to 3 monthly
- DOAC
 - FBC & LFT → 3 monthly
 - U&E → 6 monthly
 - Weight
 - CrCl
 - Indication-CrCl based dosing

Amiodarone

- TFT, LFT & U&E → 6 monthly
- Chest x-ray, eye assessment & ECG → 12 monthly

Antidiabetic Agents

- HbA1C, FBC, LFT & U&E → 3. 6 or 12 monthly
- BMI, urine ACR, Bone profile & vitamin B12 → 12 monthly

Antipsychotics

- HbA1C, FBC, lipids profile, LFT & U&E → 12 monthly
- BMI, BP & ECG → 12 monthly

Lithium

- Lithium level → 3 or 6 monthly
- HbA1C, FBC, lipids profile, LFT, TFT, Ca^{2+} U&E & weight → 6 monthly

Azathioprine, Methotrexate & Sulfalazine

- FBC & LFT → 3 monthly
- U&E → 6 monthly

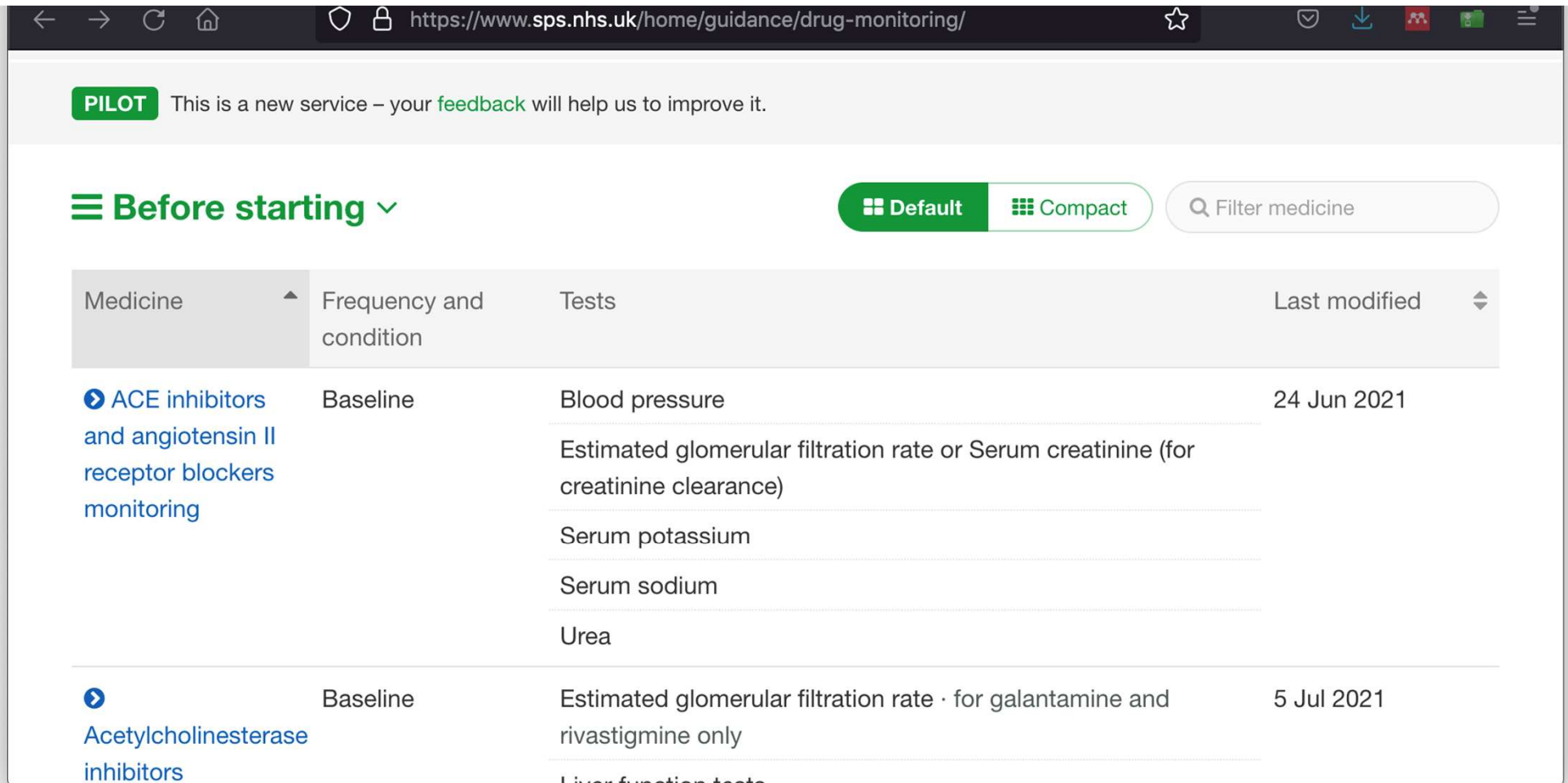
LABORATORY EVENTS	VALUES	ACTION
MCV	> 110 fl	Check B12 and folate – supplementation may be required if low. Also check TSH. If these are all normal, seek Specialist advice.
WBC	< $3.5 \times 10^9/L$	Withhold and seek Specialist advice, repeat FBC in 1 or 2 weeks.
Neutrophils	< $2.0 \times 10^9/L$	
Platelets	< $150 \times 10^9/L$ or bleeding	
Significant deterioration in renal function	Creatinine >30% of baseline.	Seek Specialist advice. Caution: dose reduction advised in renal impairment
Elevation in liver enzymes (or falling albumin)	>2 fold rise in AST, ALT or Alk Phos (from upper limit of reference range).	Withhold and seek Specialist advice.
Serial decrease in WBC and/or platelets within normal range	E.g. $6.0 \rightarrow 5.0 \rightarrow 4.5$ over 3 occasions	

Tips

- Prescribe within your competency
- Seek advice and support when unsure
- Identify resources
- Sign up to CAS alerts
- Be aware of care transition
- Document accurately
- Inform patients of monitoring requirements
- Set up follow up plan & automate recalls
- Review medicine doses/needs at every opportunity
- Regular audits

SPS Medicine Monitoring

<https://www.sps.nhs.uk/home/guidance/drug-monitoring/>



The screenshot shows the SPS Medicine Monitoring website. At the top, there is a navigation bar with a back arrow, a forward arrow, a refresh icon, a home icon, a lock icon, and the URL <https://www.sps.nhs.uk/home/guidance/drug-monitoring/>. To the right of the URL are icons for a star, a shield, a download arrow, a red cross, a green cross, and a menu icon.

Below the navigation bar, there is a green box with the word "PILOT" and the text "This is a new service – your feedback will help us to improve it." Below this is a section titled "Before starting" with a dropdown arrow. To the right of this section are two buttons: "Default" (selected) and "Compact". To the right of these buttons is a search bar with the text "Filter medicine".

The main content is a table with four columns: "Medicine", "Frequency and condition", "Tests", and "Last modified". The table has two rows of data.

Medicine	Frequency and condition	Tests	Last modified
ACE inhibitors and angiotensin II receptor blockers monitoring	Baseline	Blood pressure Estimated glomerular filtration rate or Serum creatinine (for creatinine clearance) Serum potassium Serum sodium Urea	24 Jun 2021
Acetylcholinesterase inhibitors	Baseline	Estimated glomerular filtration rate · for galantamine and rivastigmine only Liver function tests	5 Jul 2021

Conclusion

- Medicine monitoring is vital part of patient journey
- It's a continues review of benefit Vs risk
- Involve patients in the monitoring process
- Set up process to automate monitoring