CLOZAPINE STANDARDS for MENTAL HEALTH & LEARNING DISABILITY SERVICES

TARGET AUDIENCE	Nursing, medical and pharmacy staff working within Mental Health & Learning Disability services
PATIENT GROUP	All patients within NHS Lanarkshire prescribed clozapine

Clinical Guidelines Summary

- This document sets out the minimum standards in relation to the use of clozapine within NHS Lanarkshire to ensure that there are consistent approaches to its management.

- It supports staff who are actively managing patients on clozapine to ensure safe, effective, efficient and patient-centred care.

- It covers the core aspects of clozapine management including;

    - Patient information
    - Initiating clozapine and registration
    - Ongoing side effect monitoring
    - Discharge planning
    - Management of blood dyscrasias
    - Managing treatment breaks
    - Validity of FBC samples
    - Discontinuation of clozapine
    - Clozapine assay levels and smoking
    - Healthy living advice
    - Record keeping and communication
    - Supply of clozapine by pharmacy
    - Roles and responsibilities of various health care professionals

Contents Page

1. Introduction

Clozapine is a second generation antipsychotic and the gold standard antipsychotic for treatment-resistant schizophrenia as well as having a licence in schizophrenia for those who are intolerant to other antipsychotics and for psychosis in Parkinson's disease. It is essential that there are consistent approaches within NHS Lanarkshire to managing clozapine to ensure safe, effective, efficient and patient-centred care.

2. Aim

This document sets out the minimum standards in relation to how clozapine is managed within NHS Lanarkshire.

3. Scope

This guidance is applicable to the management of clozapine irrespective of the clinical setting of the patient. Although this document is aimed primarily at staff who are actively managing patients on clozapine, it is also relevant to all clinical staff working within NHS Lanarkshire Mental Health and Learning Disabilities Service, who in the course of their work may be involved in the care of individuals receiving treatment with clozapine.

4. Patient information

4.1 Patient information provided prior to commencing clozapine

a) Prior to commencing clozapine, patients and where appropriate their next of kin/ carer/ welfare guardian, must have a full discussion with their consultant psychiatrist about the risks and benefits of treatment in order for them to make an informed decision regarding treatment.

b) Where an individual lacks capacity or is receiving treatment under Mental Health (Care & Treatment) (Scotland) Act 2003, appropriate information must be provided according to their needs and capability.

c) The information provided should include;

- The rationale for clozapine, what it is and what it is being used to treat
- The need and rationale for mandatory blood tests (explaining green, amber, red results)
- The requirement for ongoing physical health checks
- Common adverse effects and how to manage these. There should be a specific focus on sedation, constipation, hypersalivation, impact on appetite and risk of weight gain
- Where appropriate, there should be discussion about the risks of less common, but more serious adverse effects including diabetes, seizure risk, cardiac side effects
- Compliance advice and what to do in the event of missed doses
- Significant interactions, especially smoking and alcohol
- Family planning and contraception advice where appropriate.
- What to do in the event of developing signs of infection e.g. sore throat.

d) Information must be tailored to the individual's needs, understanding and capacity. It is essential to reflect on the principles of the Montgomery ruling when considering the information offered to patients to support shared-decision making. Prescribers must ensure that patients are aware of any material risks involved in the treatment and of any reasonable alternatives.[1]

e) Written patient information should be used to support the discussion about the risks and benefits of treatment. (Appendix 2 – Patient Information Resources)

4.2 Ongoing patient information requirements

a) Patients on clozapine should have their individual information needs assessed on a regular basis throughout treatment and appropriate information provided.

b) The information provided to the patient should be tailored to the individual's needs, concerns about treatment, understanding and capacity.

4.3 Information for Care Home and Care Providers

A clozapine guide designed for Care Home staff and Care Providers who care and support people who are prescribed clozapine is available for information and to support the key aspects of managing clozapine.

https://www.careinspectorate.com/index.php/publications-statistics/80-professionals-registration/health-guidance Care Inspectorate - Guidance for care of people prescribed clozapine in care homes. [2]

5. Initiating clozapine

Within NHS Lanarkshire, clozapine initiation is currently undertaken within inpatient settings. Ensuring the minimum monitoring is undertaken in line with the manufacturer's recommendations and national standards remains a challenge with current community mental health team resources. This will continue to get kept under review.

5.1 Pre-treatment tests

a) Clozapine is subject to ongoing mandatory full blood count (FBC) monitoring due to the risk of neutropenia and agranulocytosis. A baseline FBC is required to register the patient with the monitoring service. A FBC must be less than 10 days old to register and commence clozapine.

b) In line with the NHS Scotland national standards[3] the following baseline tests and investigations must be undertaken prior to commencing clozapine;

Laboratory tests	Physical tests and assessments
FBC	Blood pressure (lying/ standing)
CRP	Pulse
Troponin	Weight/ BMI
LFTs	ECG
U&Es	Smoking status
Fasting blood glucose and/or HbA1c	Assessment of bowel function
Lipids	Pregnancy test, where appropriate
	Check for potential interactions
	Check for exclusion criteria/ contraindications/ cautions to treatment

5.2 Patient registration

a) All patients must be registered with a clozapine monitoring service associated with the contracted clozapine supplier for NHS Scotland. Most patients in NHS Lanarkshire are registered with the Clozaril® Patient Monitoring Service (CPMS) with the exception of a small number of patients who are registered with Denzapine® Monitoring Service (DMS) (for liquid preparation). (Appendix 3 – Clozapine monitoring service details)

b) CPMS is a web-based patient monitoring system, developed and maintained in accordance to requirements of MHRA and assists with maintaining patient safety, providing information and advice, controlling distribution and preventing inappropriate rechallenges with clozapine.

c) Prescribers (consultant psychiatrist or specialty doctor) must be registered with the clozapine monitoring service.

d) Dispensing pharmacies must also be registered with the clozapine monitoring service. **University Hospital Monklands** is the registered pharmacy site within NHS Lanarkshire for all patients prescribed clozapine.

e) Registration forms for patients and prescribers can be found on the monitoring service websites.

5.3 Prescribing and supply of clozapine

a) Clozapine should not be prescribed or dispensed until registration with the clozapine monitoring service is complete. When registered, the patient's consultant and the dispensing pharmacy will receive notification (usually via secure email).

b) Clozapine must be prescribed by, or under the supervision of, a consultant psychiatrist in accordance with the licensed indications.[4]

c) The clozapine monitoring service must be notified of any off-label use of clozapine during the registration process.

d) Clozapine should be initiated according to standard clozapine initiation advice.[4]

e) The standard titration regimes should be used for the majority of initiations. The clozapine standard titration is built within the HEPMA system (Hospital Electronic Prescribing and Medicines Administration) and should be used for standard titrations
Prescribing clozapine standard titration regime on HEPMA

f) An individualised titration regime can be used to create a slower, bespoke titration for older adults and where there is evidence that the standard titration of clozapine may not be tolerated.
Appendix 4 - Clozapine standard titrations

g) It is recommended that clozapine titrations should not be initiated over a weekend where possible to ensure that monitoring can be undertaken appropriately and there is sufficient medical cover available if required.

h) To request an inpatient supply of clozapine, a request should be sent to the site dispensing pharmacy directly or via secure email
Appendix 5 – clozapine inpatient supply request

- **UH Monklands pharmacy** (for UHM wards, Parkside North and South, Cleland hospital; Iona and Gigha wards, Beckford lodge; Kylepark, Kirklands hospital; Glencairn, Coathill hospital
- **UH Hairmyres pharmacy** (for UHH wards; Brandon and Clyde wards, Udston Hospital)
- **UH Wishaw pharmacy** (for UHW wards)

i) Supplies of clozapine for inpatients in acute wards should be ordered by nursing staff via Appendix 5 – clozapine inpatient supply request (include a copy of bespoke titration where applicable)

j) Supplies of clozapine for inpatients in rehab, continuing care or forensic MH wards are sent at the frequency of their blood monitoring from pharmacy on receipt of a clozapine repeat prescription Appendix 6 – Clozapine repeat prescription

k) Pharmacy will dispense an individually labelled patient supply of clozapine on receipt of the titration and a suitable FBC result and send this to the ward.

l) Once the titration is complete, a stable dose should be prescribed on the patient's HEPMA prescription record.

m) On discharge from hospital, it is the responsibility of the consultant psychiatrist or speciality doctor to prescribe clozapine for outpatient supplies on a clozapine repeat prescription and send this to the dispensing pharmacy Appendix 6 – Clozapine repeat prescription

n) A new prescription will need to be written on an annual basis and in the event of any dose changes.

6. Monitoring

6.1 FBC monitoring

a) All patients prescribed clozapine will be monitored according to the marketing authorisation and the national clozapine standards.[3,4]

b) Monitoring will be undertaken within the ward for inpatients and in clozapine clinics for outpatients. (For patients who are residents in care homes, arrangements should be made to ensure that monitoring is completed in line with standards).

c) Patients prescribed clozapine will have FBC monitoring according to the following schedule;

Baseline at registration	
Weekly	For first 18 weeks of treatment
Fortnightly	From end of weekly monitoring up to 52 weeks
Every 4 weeks	After 52 weeks of treatment for as long as clozapine continues
Twice weekly	In the event of an amber result. Continue until green
Daily	In the event of a red result. Continue until 2 consecutive green results

d) The progression from weekly to fortnightly to 4 weekly bloods is on the authority of the clozapine monitoring service, and the consultant psychiatrist and the dispensing pharmacy will both be informed of the frequency change.

e) Discontinuation FBC monitoring is required for 4 weeks post clozapine cessation as dictated by the clozapine monitoring service.

f) Wards and clozapine clinics must have reliable processes in place to ensure clozapine FBCs are taken as scheduled.

g) FBCs can either be sent to local haematology laboratories or to the clozapine monitoring service's own central laboratory.

h) Where FBCs go to the clozapine monitoring service's own central laboratories, clozapine clinics must have reliable processes to ensure pick up by courier (where applicable) or transfer of samples via the Royal Mail.

i) Where FBCs go to local haematology labs, results must be manually uploaded to the clozapine monitoring service. This process is usually managed by the dispensing pharmacy. Clozapine clinics must advise pharmacy if FBC samples are going to local laboratories.

6.2 Standard observation monitoring during titration

a) The following monitoring is required during titration with clozapine;

Day of titration	Observations	Frequency
Day 1	BP (lying /standing) Pulse Temperature Respiration rate	Pre-dose then hourly for 6 hours
Day 2	BP (lying /standing) Pulse Temperature Respiration rate	Pre-am dose, then repeated at 2 hours and 6 hours post-am dose
Days 3 - 15	BP (lying /standing) Pulse Temperature Respiration rate	Pre-am dose, then repeated at 6 hours post-am dose

b) Constipation must be assessed at every contact with the patient during the titration phase and beyond. The patient should be proactively asked about bowel movements, using tools like the Bristol Stool Chart where appropriate. Appendix 7 – Bristol stool chart

Advice for the management of Clozapine-induced Gastrointestinal Hypomotility

6.3 Ongoing physical health and side effect monitoring

a) All patients prescribed clozapine should have physical health monitoring according to the NHS Scotland Clozapine Physical Health Monitoring Standards [3] irrespective of the care setting. (Appendix 8- Physical health tool for clozapine monitoring – audit tool)

NHS Scotland Clozapine Physical Health Monitoring Standards		
Parameter/test	**Frequency**	**Action if outside reference range**
Full Blood Count	Follow manufacturer's mandatory protocol	
BMI	Baseline, during initiation, 3 monthly for 1 year, then annually.	Offer lifestyle advice.
Fasting blood glucose	Baseline, at 1 month, then from 3 months, 3 monthly up to 1 year, then 6 monthly.	Offer lifestyle advice. Obtain HbA1c. Consult with GP and/or specialist as appropriate.
Blood lipids	Baseline, 3 monthly for 1 year, then 6 monthly.	Offer lifestyle advice and consult with GP and/or specialist for consideration of treatment e.g. statin therapy as appropriate.
Constipation	Assess bowel habits at baseline, any point of blood sampling and ideally at every point of contact. Ensure patients and carers are aware of the risks associated with clozapine-induced constipation.	Treat symptomatically and seek help from physicians if complete obstruction or poor response to conservative laxative treatment.

NHS Scotland Clozapine Physical Health Monitoring Standards		
Parameter/test	**Frequency**	**Action if outside reference range**
Blood pressure	Baseline, as per initiation protocol, 3 monthly for 1 year, then annually. Also following dose changes.	If hypotensive: consider slower titration or dose reduction. If hypertensive: offer lifestyle advice and consult with GP and/or specialist for consideration of treatment.
Pulse	Baseline and as per initiation protocol, at 3 months, then annually.	Consider slower titration or dose reduction. If tachycardia persistent, observe for other indicators of myocarditis or cardiomyopathy.
ECG	Baseline, 3 weeks, at 3 months and then annually. Additional ECGs should be performed as clinically indicated.	Act on abnormality according to significance and clinical indication. Refer to cardiologist if in doubt. Continue clozapine with daily CRP and troponin monitoring and request echocardiography if: • Signs or symptoms of unidentified illness OR • HR ≥ 120bpm or increased by > 30bpm over 24 hours OR • CRP 50 – 100 mg/l OR • Mild elevation of troponin I ≤ 2 x Upper limit of normal <u>Stop clozapine</u>, consult a cardiologist and request echocardiogram if: • Troponin > 2 x upper limit of normal OR • CRP > 100mg/l
Troponin & CRP	Baseline, day 7, 14, 21 & 28.	
Urea & electrolytes	Baseline then as clinically indicated.	Investigate as clinically appropriate.
Liver function tests	Baseline then annually or more frequently if clinically indicated.	Investigate as clinically appropriate.

NHS Scotland Clozapine Physical Health Monitoring Standards		
Parameter/test	**Frequency**	**Action if outside reference range**
Side effects	'GASS for Clozapine' or other recognised side effect questionnaire for antipsychotic medication during initiation and regularly thereafter, with general side effect enquiry at least at any point of blood sampling.	As clinically appropriate.
Smoking status	On initiation and at regular intervals thereafter, at least annually. Warn patient regarding effect of changes in smoking status on clozapine levels and side effects.	Check clozapine level and 'GASS for Clozapine' if change of status.
Women of reproductive age	Pregnancy/contraceptive status on initiation and at regular intervals thereafter, at least annually.	In all cases: pre-pregnancy discussion of pregnancy intentions. Offer advice/signposting on contraception. Early discussion of options if unplanned pregnancy.

b) All patients prescribed clozapine should have regular assessment of clozapine-related side effects including the following;
- Assessment of constipation (at every contact)
  Advice for the management of Clozapine-induced Gastrointestinal Hypomotility
- Regular blood pressure (lying / standing), pulse, temperature, weight, BMI
- Smoking status (refer to Section 17)
- Proactive questioning about potential side effects of clozapine including;

Akathisia Blurred vision Confusion **Constipation** Diarrhoea Dry mouth	Excessive sweating Hypersalivation Myoclonus Nausea Postural hypotension Sexual dysfunction	Sedation Seizures Tremor Urinary incontinence Vomiting

c) The Glasgow Antipsychotic Side-effect Scale – clozapine version ('GASS for clozapine') should be used regularly to formally assess side effects. It is recommended that this is completed during initiation, every 3 months in the first year of treatment, then every 6 months as well as one month after dose changes. (Appendix 9 – GASS for clozapine)

d) The e-form within electronic records (where used) should be used to document FBC monitoring as well as ongoing physical health and side effect monitoring. (Appendix 10 - MORSE e-form)

7. Discharge of clozapine patients from inpatient to outpatient care

7.1 New patients

a) When planning for discharge following a new initiation of clozapine, the inpatient team must liaise with the appropriate geographical clozapine clinic to ensure ongoing arrangements are in place for clozapine monitoring.

b) The inpatient team should ensure that the patient is aware of where clozapine monitoring will be undertaken and where they obtain their supply of clozapine.

c) The inpatient team must liaise with pharmacy in a timely manner to ensure adequate supplies of clozapine on discharge.

d) The inpatient team should ensure that any clozapine monitoring is up to date prior to discharge.

e) A clozapine repeat prescription for ongoing supply with the patient's current dose, contact details for CPN/ consultant psychiatrist should be written in full and sent to pharmacy. A new prescription will need to be written on an annual basis.
Appendix 6 – Clozapine repeat prescription

7.2 Established clozapine patients

a) The inpatient team must liaise with the appropriate clozapine clinic to advise them of discharge and when monitoring is next due.

b) The inpatient team must liaise with pharmacy in a timely manner to ensure adequate supplies of clozapine on discharge.

c) The inpatient team should ensure that any clozapine monitoring is up to date prior to discharge.

d) A clozapine repeat prescription must be written and sent to pharmacy if there has been any change in dose during the inpatient stay. Appendix 6 – Clozapine repeat prescription

Geographical remit of clozapine clinics

Clozapine clinics have a geographical remit and patients should be referred to the appropriate clozapine clinic according to their home address.

Locality clozapine clinics are predominantly lead by staff within the local general adult CMHT. Patients who are on clozapine and open to non-adult MH subspecialities e.g. forensic MH, community rehab team, older adult, CAMHS and Learning Disabilities can be referred into the locality clozapine clinic for the routine monitoring of clozapine for both patient convenience and to take advantage of the adult MH CMHT's expertise in managing patients on clozapine. The patient's own clinical team must liaise with the locality clozapine clinic around respective roles and responsibilities and ensure there is clear communication between both parties.

For patients who cannot attend the locality clozapine clinic, arrangements for ongoing monitoring in line with the standards needs to be agreed and actioned within the patients' own team (refer to Roles and Responsibilities section 21.5)

8. Managing blood dyscrasias

8.1 Clozapine Traffic Light Warning System for neutropenia and out of range results

Blood counts (x 10^9/L)	Classification	Action
WBC ≥ 3.5* *and* **Neutrophils ≥ 2.0***	Green	Continue clozapine treatment
WBC ≥ 3.0 and < 3.5 * *and/or* **Neutrophils ≥ 1.5 and < 2.0 ***	Amber	Treatment can be continued Full blood count to be done twice weekly until back to green
WBC < 3.0 * *and/or* **Neutrophils < 1.5 ***	Red	STOP clozapine treatment Full blood count to be done daily until back to green (require two consecutive green results) Consultant psychiatrist must be informed
Neutrophil count <0.5	Red	Haematology should be contacted
Eosinophils > 3.0	Out of range	Continuation not usually recommended Consultant psychiatrist must be informed
Platelets < 50	Out of range	Continuation not usually recommended Consultant psychiatrist must be informed

* The cut-off values of the 'traffic light' system for WBC/ Neutrophil parameters are lower in Benign Ethnic Neutropenia (BEN)

a) Email alerts will be sent to the consultant psychiatrist and pharmacy to inform of any amber or red results.

b) The dispensing pharmacy will contact the appropriate clozapine clinic/ sampling centre/ CPN to advise of a red or amber result.

c) In the event of a red result, the clozapine monitoring service will also contact the clozapine clinic/ sampling centre and the dispensing pharmacy by phone.

d) Wards/ clozapine clinics must have processes in place to manage abnormal results including red and amber results which require an increase in FBC monitoring.

e) Where monitoring is required outwith the normal times of the clozapine clinic for outpatients, this must be facilitated by the patient's local team (see Roles and Responsibilities). In the event of a red result prior to a weekend, this will include daily bloods on Saturday and Sunday.

f) Pharmacy services can provide specific advice for FBCs in the event of an abnormal result.

8.2 Management of a red alert

a) Clozapine must be stopped immediately.

b) The patient must be monitored for any signs of infection.

c) Arrange to take follow-up FBCs on the 2 days following the date of the red alert sample.

d) If either of these FBCs is in the red alert range then the red alert is confirmed and clozapine is contraindicated.

e) If the red alert is confirmed the patient must not restart clozapine.

f) FBCs must be performed daily whilst the blood counts remain in the red range, and the patient must be observed closely for signs of infection, such as a sore throat or fever. This includes access to FBC testing over weekends and arrangements must be put in place to support this if required.

g) FBCs should be reported to the clozapine monitoring service as soon as they are available.

h) The use of other antipsychotics should be avoided following a red result. If antipsychotic medication is considered essential, use a drug with a low potential to cause neutropenia.

i) Review all other medication and consider stopping any drugs which may reduce the WBC and/or neutrophil counts.

8.3 Management of an amber alert

a) Arrange for the patient to have twice weekly FBCs until results return to green.

b) Clozapine treatment can be continued following amber results.

8.4 Management of eosinophila (raised eosinophils > 3.0) or thrombocytopenia (low platelets < 50)

a) The clozapine monitoring service will contact the patient's consultant psychiatrist to advise of the result.

b) The recommendation is usually to stop treatment until results normalise (eosinophils should be below 1 before recommencing).

c) Arrange for follow-up FBCs (usually twice a week).

9. Treatment breaks and retitrations

a) In patients in whom the interval since the last dose of clozapine exceeds 2 days (> 48 hours), clozapine must be retitrated from 12.5mg either once or twice on the first day. The individualised clozapine titration regime can be used to create a faster retitration if appropriate Appendix 4 - Clozapine standard titrations

b) In addition to the requirement for retitration, when an individual has had had their treatment interrupted for more than 3 days, their blood monitoring frequency will change as well (usually weekly monitoring for an additional 6 weeks). The clozapine monitoring service must be informed of a treatment break and will give specific advice on any temporary change of FBC frequency for the patient and the specific circumstances.

c) In certain circumstances, retitration of clozapine may be managed as an outpatient. The decision to retitrate as an outpatient must be made on a case by case basis taking a number of factors into consideration; the individual patient's physical and mental health; the length of treatment break; support for the patient to manage the changes in dose required during retitration; the capacity of the CMHT to support and monitor during the retitration. Standard observations required for a retitration may not require to be as robust as those required for a new clozapine initiation. This will depend on the length of the treatment break and how the patient has previously tolerated clozapine.

10. Maximum validity of FBC samples

a) For weekly monitored patients, a result is valid for dispensing from the analysis date of the blood result until 3 days beyond the standard monitoring frequency.

b) For fortnightly monitored patients, the result is valid from analysis date until 7 days beyond the standard monitoring frequency.

c) For 4-weekly monitored patients, the result is valid from analysis date until 14 days beyond the standard monitoring frequency.

Monitoring frequency	Duration of validity	Overdue notification*	Clozapine prohibited from *
Weekly	7 days (+ 3 days)	Day 10	Day 11
Fortnightly	14 days (+ 7 days)	Day 20	Day 22
4-weekly	28 days (+ 14 days)	Day 36	Day 43

* a notification alert is sent to the consultant psychiatrist and pharmacy on this day

d) Supplies of clozapine can only be dispensed up to the maximum validity of the FBC sample.

11. Access to the electronic clozapine monitoring service

a) All clinical staff involved in the care of patients on clozapine should have access to the clozapine monitoring system and be familiar with its use.

b) Access forms can be downloaded from the clozapine monitoring service's website.

12. Patients with swallowing difficulties or enteral feeding tubes

a) Clozapine tablets can be crushed and dispersed in water in the event that the solid oral dosage form is unsuitable.

b) A licensed liquid preparation is available (Denzapine® 50mg/ ml oral suspension), but as this is supplied by a different manufacturer to the tablet formulation (Clozaril®), the patient and prescriber must be registered with the Denzapine Monitoring Service (DMS) before prescribing. Supply of the suspension can only be organised during working hours via liaising directly with pharmacy.

13. Planned discontinuation of clozapine

a) Any planned discontinuation of clozapine should be done gradually to minimise the risk of rebound psychotic symptoms and acute physical symptoms associated with sudden discontinuation. Where possible, clozapine should be discontinued over at least 1-2 weeks (the exception to this would be discontinuation as a result of a red result or other serious adverse effects e.g. suspected myocarditis or an acute bowel where clozapine must be abruptly stopped).

b) FBC monitoring should continue for a further 4 weeks at the established frequency from the day the last dose of clozapine was taken (discontinuation bloods).

c) The dispensing pharmacy must be advised of the planned discontinuation.

d) The clozapine monitoring service must be advised of the dates and rationale for discontinuation.

14. Planning for holidays

a) Most planned holidays can be accommodated with appropriate adjustment of FBC sampling and extension of sample validity to allow dispensing of an adequate supply for the duration of the holiday.

b) Where a patient is planning an extended holiday that exceeds their frequency of monitoring, bespoke arrangements will need to be put in place following discussion with the clozapine monitoring service. Dependent on the length of holiday, off-label arrangements may need to be put in place in consultation with the patient's consultant psychiatrist and the clozapine monitoring service.

c) The dispensing pharmacy should be contacted at the earliest opportunity to plan for holidays in relation to clozapine supplies, any change in FBC frequency, and extension of validity and involvement of the monitoring service.

15. Clozapine Plasma (assay) levels

a) Clozapine plasma levels may be requested by the patient's consultant psychiatrist on an ad hoc basis. **They are not required for routine management.**

b) They may be useful in the following circumstances;
- If the patient's smoking status changes
- To monitor compliance
- Prior to considering augmentation strategies where a patient has failed to fully respond to an adequate trial of clozapine
- To support the diagnosis of dose-related side effects including sedation, hypersalivation, tachycardia, postural hypotension, constipation, seizures
- Where dose reduction is being considered
- Where a pharmacokinetic drug interaction is suspected

c) The MHRA advises monitoring clozapine plasma levels in certain clinical situations such as when: [5]
- a patient stops smoking or switches to an e-cigarette
- concomitant medicines may interact to increase blood clozapine levels
- a patient has pneumonia or other serious infection
- poor (reduced) clozapine metabolism is suspected
- toxicity is suspected

d) Clozapine plasma levels must be trough levels (12 hours post dose in once daily dosing or immediately before morning dose in multiple daily dosing).

e) Clozapine dose should be stable for at least a week prior to a plasma level.

f) Clozapine plasma levels are performed at an external laboratory and can take between 2-5 days to be processed, therefore are not generally useful in urgent situations. Results are sent via email or post to the patient's named consultant psychiatrist or specialty doctor and via email to MH pharmacy services.

16. Healthy living advice

a) People with life-long mental illness are likely to die 15-20 years prematurely because of physical ill-health. [6]

b) Multiple morbidity is common and patients with mental illness are more likely to develop physical ill- health at a younger age.

c) Second generation antipsychotics like clozapine can cause significant metabolic changes which may increase the risk of physical ill-health.

d) Patients on clozapine should be offered healthy living advice with a focus on lifestyle factors such as smoking, alcohol, illicit substance use, physical inactivity and diet.

17. Smoking

a) Close monitoring of an individual is essential if there is a change in their smoking habit.

b) Tobacco smoke contains hydrocarbons that increase the activity of certain hepatic enzymes especially CYP1A2.

c) Smoking increases the metabolism of clozapine and consequently reduces the plasma levels. This means a higher dose of clozapine may be necessary to achieve a therapeutic effect.

d) The effect of smoking is dose related i.e. the more cigarettes smoked, the greater the enzyme induction. This also means that any reduction in the number of cigarettes smoked per day may result in increased clozapine plasma levels.

e) Plasma clozapine may rise substantially within 3-5 days of smoking cessation and vice-versa (i.e. starting smoking can decrease levels and cause a potential deterioration in mental state).

f) When a patient stops smoking, the increased enzyme activity reduces over a week, although it can take many weeks for this to return to baseline. This will result in a likely rise of the plasma level with subsequent increase in clozapine plasma level-related side effects e.g. sedation, hypersalivation, tachycardia, postural hypotension, constipation, seizures

g) The interaction between smoking and clozapine is unrelated to nicotine. Therefore, if a patient stops smoking but moves to using nicotine replacement therapy or e-cigarettes, their clozapine plasma levels will be expected to rise in line with the reduction in enzyme activity.

18. Record keeping

a) A clear record of care provided to patients on clozapine must be made for every clinical contact. *(*Appendix 10 -MORSE clozapine e-form)

19. Communication

a) There must be effective communication between all parties involved in the delivery of care to patients on clozapine. Clear communication is especially important for patients who are under the care of MH subspecialties and whose CPN is not within the locality CMHT.

b) The patient's records should include contact details for their consultant psychiatrist, clozapine clinic, CPN and dispensing pharmacy.

c) If a patient transfers to a new consultant psychiatrist or a different clozapine clinic, the dispensing pharmacy and the clozapine monitoring service must be informed to ensure accurate data is held. This is important so that the pharmacy and monitoring service have the correct details of key personnel in the event of a blood dyscrasia or late sample.

d) It is good practice to inform GPs when clozapine is prescribed or treatment is stopped and to ask for clozapine to be added to the patient's prescribing records. This is important to highlight potential interactions with medications prescribed by the GP, but also to support medicines reconciliation on admission to hospital.

20. Supply of clozapine by pharmacy

a) Within NHS Lanarkshire, clozapine for outpatients is supplied via;
   - **UH Monklands pharmacy** MKClozapineprescriptions@lanarkshire.scot.nhs.uk

   This is the only registered dispensing site for clozapine. The remaining 2 acute sites will act as satellite dispensing sites and supply clozapine for their respective inpatients and on discharge.

b) Pharmacy departments dispensing clozapine must be registered with the clozapine monitoring service.

c) Clozapine will be dispensed in accordance with the clozapine monitoring service procedures.

d) Clozapine supplies are dispensed from pharmacy according to one stop clinic processes for clozapine clinics (Appendix 11) or on receipt of a valid result to last for the duration of the blood validity.

e) Once clozapine is dispensed by pharmacy and sent to the CMHT for collection, the supply of clozapine to the patient at the CMHT can be facilitated by any member of staff (confirm identity by checking name and date of birth). This process does not have to be facilitated by an RMN.

21. Roles and responsibilities - not exhaustive

21.1 Consultant psychiatrist/ specialty doctor

- Register new patient with clozapine monitoring service
- Provide patient with suitable information on clozapine
- Ensure patient has made informed consent to treatment
- Ensure clozapine is covered by compulsory treatment plan (T2/T3) where appropriate
- Prescribe clozapine titration
- Complete clozapine repeat prescription; on discharge; in the event of any dose changes; on an annual basis
- Liaise with primary care if any concerns regarding the patient's physical health
- Communicate with patient's GP to advise when clozapine is started/ stopped
- Inform pharmacy and the clozapine monitoring service if the patient is no longer under their care
- Regular outpatient appointments to monitor and assess mental health and ensure physical health checks completed
- Ensure that new patients are referred to the locality clozapine clinic

21.2 Inpatient nursing staff

- Order clozapine supplies from pharmacy
- Undertake standard observations during titration
- Ensure FBCs are taken at the required frequency
- Ensure physical health monitoring and side effect monitoring is completed in line with national standards whilst the patient is an inpatient
- Keep a clear record of care provided on the clozapine MORSE form completed at intervals according to blood frequency.

- Feedback any concerns regarding mental health, physical health or side effects to the patient's consultant psychiatrist (especially with regards to constipation)
- Liaise with pharmacy regarding any changes to blood sampling for individuals
- Ensure the ward has a process in place to obtain FBCs for patients as scheduled (SCN)
- Ensure patients have a care plan in place that addresses specific care issues regarding clozapine treatment
- Ensure that new patients are referred to the locality clozapine clinic or alternative arrangements are in place for ongoing outpatient monitoring (*refer to 21.5*).

21.3 Clozapine clinic staff

- Ensure FBCs are taken at the required frequency
- Ensure physical health monitoring and side effect monitoring is completed in line with national standards
- Keep a clear record of care provided on the clozapine MORSE form completed at intervals according to blood frequency.
- Feedback any concerns regarding mental health, physical health or side effects to the patient's consultant psychiatrist and /or the patient's own CPN (within locality adult CMHT or MH subspecialty)
- Contact patient's CPN to advise of any non-attendance and to ensure that arrangements are made for subsequent blood samples
- Provide pharmacy with an attendance record following any clinic including any non-attendance
- Liaise with pharmacy regarding any changes to blood sampling for individuals
- Have SOPs in place to ensure adherence with standards
- Samples required outwith standard clozapine clinic times e.g. follow up bloods for ambers/ reds/ out of ranges samples/ clotted or spoiled samples or in the event that patient does not attend the clinic needs to be managed by the patient's own team with systems in place to follow up results once samples taken.

21.4 Clinical teams of patients open to MH subspecialties e.g. forensic MH, community rehab team, older adult MH, CAMHS, Learning Disabilities

- Ensure that new patients are referred to the locality clozapine clinic
- Provide the locality clozapine clinic with any relevant requested clinical information.
- Ensure that samples required outwith standard clozapine clinic times e.g. follow up bloods for ambers/ reds/ out of ranges samples/ clotted or spoiled samples are obtained.
- Ensure that there are suitable follow up arrangements in the event that patient does not attend the clinic at their scheduled time.
- Liaise with the locality clozapine clinic in relation to bloods/ monitoring that have been obtained outwith clozapine clinic routine appointment.

21.5 Clinical teams of patients who are unable to attend a locality clozapine clinic

- Organise bespoke arrangements for patients to have monitoring in line with standards
- Ensure FBCs are taken at the required frequency
- Ensure physical health monitoring and side effect monitoring is completed in line with national standards
- Keep a clear record of care provided on the clozapine MORSE form completed at intervals according to blood frequency.

- Liaise with pharmacy regarding any changes to blood sampling for individuals
- Have clear arrangements with pharmacy regarding supply and delivery of clozapine.
- Ensure that any extra samples e.g. follow up bloods for ambers/ reds/ out of ranges samples/ clotted or spoiled samples are obtained.

21.6 Clozapine dispensing pharmacy

- Dispense clozapine according to the clozapine prescription or inpatient supply request form
- Arrange for supplies of clozapine to be delivered to CMHT/ ward at agreed frequency
- Inform the clozapine clinic/ ward of any problems in respect of dispensing clozapine
- Inform clozapine clinic/ ward/ consultant psychiatrist as appropriate about any notification from the clozapine monitoring service e.g. lost samples, clotted samples, abnormal results and provide advice about next steps
- Add a clinical note to JAC dispensing system to highlight prescription of clozapine which will in turn populate the HEPMA (Hospital Electronic Prescribing & Medicines Administration) system
- Contact prescribing support pharmacist and/or GP to advise when clozapine is started/stopped.

22. References/Evidence

1. Montgomery v Lanarkshire Health Board 2015. https://www.supremecourt.uk/cases/docs/uksc-2013-0136-press-summary.pdf

2. Care Inspectorate. Guidance for care of people prescribed clozapine in Care homes. Mar 2023 https://www.careinspectorate.com/index.php/publications-statistics/80-professionals-registration/health-guidance

3. NHS Scotland Clozapine Physical Health Monitoring Standards**.** Scottish Government. CMO (2017) https://www.sehd.scot.nhs.uk/cmo/CMO(2017)04.pdf

4. Clozaril Summary of Product Characteristics. https://www.medicines.org.uk.

5. Clozapine and other antipsychotics: monitoring blood concentrations for toxicity. Drug Safety Update volume 14, issue 1: August 2020: 2. https://www.gov.uk/drug-safety-update/clozapine-and-other-antipsychotics-monitoring-blood-concentrations-for-toxicity

6. Mental Health Strategy 2017-2027. Scottish Government 2017. https://www.gov.scot/publications/mental-health-strategy-2017-2027/

23. Other useful links

- Electronic Medicines Compendium https://www.medicines.org.uk/emc/
- Stockley's Drug Interactions https://www.medicinescomplete.com/#/browse/stockley
- British National Formulary http://www.bnf.org/bnf/bnf/current/104945.htm
- Clozaril Heath Care Professionals information https://www.hcpinfo.clozaril.co.uk/

Appendices

Appendix 1- Governance information for Guidance document

Lead Authors:	Lorna Templeton, Lead Pharmacist MH&LD
Endorsing Body:	Mental Health & Learning Disabilities Drug & Therapeutics Committee
Governance or Assurance Committee	Mental Health & Learning Disabilities Clinical Governance Group
Approval Date:	
Version Number:	V6
Review Date:	

CONSULTATION AND DISTRIBUTION RECORD	
Contributing Author(s)	• MH&LD Drug & Therapeutics Committee members
Consultation Process / Stakeholders:	• Clozapine clinic staff • MH&LD pharmacy staff • Senior Nurses • Division of Psychiatry • MH&LD Drug & Therapeutics Committee
Distribution:	• NHSL MH&LD medical staff • MH&LD inpatient nursing staff • CMHT/ CLDT nursing staff • Care home liaison staff • MH&LD pharmacy staff

CHANGE RECORD

Date	Lead Author	Change	Version
Nov 2020	L Templeton	New guidance	1
Nov 2021	L Templeton & MHLD D&T	Updates include: 4.3 Care home guidance 5.3f HEPMA standard titration advice 8.2f Monitoring requirements for red results over weekend 9c Advice for retitration	2
May 2022	L Templeton	Added link to Clozapine-induced Gastrointestinal Hypomotility Guidance	3
Aug 2022	L Templeton & CMHT team leaders	Clarity regarding locality clinics and responsibilities of subspeciality teams	4
Apr 2023	L Templeton	Update regarding clozapine clinic one stop model (appendix 11) and centralisation of clozapine outpatient dispensing to UHM. 4.3 New link to Care inspectorate care home guidance 12. Addition of advice for swallowing difficulties Change of format in line with new CG template	5
Sep 2023	L Templeton	Addition of advice for patients who are unable to attend a locality clozapine clinic (section 7.2 and 21.5)	6

Appendix 2 - Patient Information resources

Choice and Medication website

https://www.choiceandmedication.org/nhs24/

- patient information leaflets in a variety of formats/ languages
- handy fact sheets e.g. clozapine & smoking, clozapine & constipation, red blood results
- comparison charts

Clozaril Connect

https://www.patientinfo.clozaril.co.uk/

https://www.patientinfo.clozaril.co.uk/-/media/clozarilcouk/pdf/material-what-to-expect-from-clozaril.pdf

- patient information from clozapine manufacturer

Appendix 3 – Clozapine monitoring service details

Clozaril Patient Monitoring Service (CPMS) https://www.clozaril.co.uk/

Denzapine Monitoring Service (DMS) https://www.denzapine.co.uk/

http://firstport2/staff-support/pharmacy-mental-health/clozapine

Appendix 4 - Clozapine standard titrations

(for info only- standard titration should be prescribed as HEPMA protocol; individualised paper titration can be used for bespoke titrations)

CHI no .....
First name ..... DOB ...../...../.....
Last name ..... Sex: ☐M ☐F
Address .....
.....
or attach addressograph label here

Hospital: ..... Ward: .....
Consultant Psychiatrist: .....

Clozapine Standard Titration Regime

Prescribe titration regime on Inpatient Prescription Form as 'as per Clozapine Titration Regime'
Refer to notes over page ↗

Day	Date	07:00-09:00	Administered by	22:00-24:00	Administered by	Standard Observations: blood pressure (lying and standing), pulse, temperature, respiration rate[1]
1		12.5mg to be given at: ..... : ..... (indicate appropriate time)				Baseline, hourly for 6 hours after first dose
2		12.5mg		12.5mg		Before am dose and repeated 2 and 6 hours after dose
3		12.5mg		25mg		Before am dose and repeated 6 hours after dose
4		25mg		25mg		
5		25mg		50mg		
6		25mg		50mg		
7		25mg		75mg		
8		50mg		75mg		
9		50mg		100mg		
10		50mg		100mg		
11		50mg		125mg		
12		75mg		125mg		
13		100mg		125mg		
14		100mg		150mg		
15*		100mg		175mg		

*At end of titration, clozapine should be prescribed routinely on the Prescription Form

Prescriber's Signature:	Prescriber's Name:	Prescriber's Designation:	Date:

NMAHPCLOZ(S1)19_18349.L

Pub. date: Aug. 2019 | Review date: Aug. 2022 | Issue No: 01

CHI no .....
First name ..... DOB .....
Last name ..... Sex: ☐M ☐F
Address
or attach addressograph label here

Hospital: ..... Ward: .....
Consultant Psychiatrist: .....

Clozapine Individualised Titration Regime

Prescribe titration regime on Inpatient Prescription Form as 'as per Clozapine Titration Regime'
Refer to notes over page ↗

Day	Date	07:00-09:00	Administered by	22:00-24:00	Administered by	Standard Observations: blood pressure (lying and standing), pulse, temperature, respiration rate[1]
1		..... mg to be given at: ..... : ..... (indicate appropriate time)				Baseline, hourly for 6 hours after first dose
2		mg		mg		Before am dose and repeated 2 and 6 hours after dose
3		mg		mg		Before am dose and repeated 6 hours after dose
4		mg		mg		
5		mg		mg		
6		mg		mg		
7		mg		mg		
8		mg		mg		
9		mg		mg		
10		mg		mg		
11		mg		mg		
12		mg		mg		
13		mg		mg		
14		mg		mg		
15*		mg		mg		

*At end of titration, clozapine should be prescribed routinely on the Prescription Form

Prescriber's Signature:	Prescriber's Name:	Prescriber's Designation:	Date:

NMAHPCLOZ(T2)_11860.L

Pub. date: May 2023 | Review date: May 2028 | Issue No: 02

http://firstport2/staff-support/pharmacy-mental-health/clozapine

Appendix 5 – clozapine inpatient supply request

Clozapine Ward Supply Weekly Order

(Patient Addressograph Label)		Morning	Noon	Evening	Night
Name:	Dose				
CHI:	HEPMA standard titration ☐			Bespoke titration* ☐	
Ward:	FIELDS BELOW FOR PHARMACY USE ONLY				
	Quantity: ☐ x 25mg			☐ x 100mg	
	Blood result:		Date:	Verified by:	
	Dispensed by:			Checked by:	

(Patient Addressograph Label)		Morning	Noon	Evening	Night
Name:	Dose				
CHI:	HEPMA standard titration ☐			Bespoke titration* ☐	
Ward:	FIELDS BELOW FOR PHARMACY USE ONLY				
	Quantity: ☐ x 25mg			☐ x 100mg	
	Blood result:		Date:	Verified by:	
	Dispensed by:			Checked by:	

(Patient Addressograph Label)		Morning	Noon	Evening	Night
Name:	Dose				
CHI:	HEPMA standard titration ☐			Bespoke titration* ☐	
Ward:	FIELDS BELOW FOR PHARMACY USE ONLY				
	Quantity: ☐ x 25mg			☐ x 100mg	
	Blood result:		Date:	Verified by:	
	Dispensed by:			Checked by:	

(Patient Addressograph Label)		Morning	Noon	Evening	Night
Name:	Dose				
CHI:	HEPMA standard titration ☐			Bespoke titration* ☐	
Ward:	FIELDS BELOW FOR PHARMACY USE ONLY				
	Quantity: ☐ x 25mg			☐ x 100mg	
	Blood result:		Date:	Verified by:	
	Dispensed by:			Checked by:	

Signature:	Print name:	Date:

* For bespoke paper titrations, send a copy with this order

Send to the site hospital pharmacy by Wednesday each week to ensure a 7 day supply on the Friday.

http://firstport2/staff-support/pharmacy-mental-health/clozapine

Appendix 6 – Clozapine repeat prescription

CHI no .....
First name ..... DOB ...../...../.....
Last name ..... Sex: ☐ M ☐ F
Address .....
.....
.....
or attach addressograph label here

Hospital: .....
Clinic: .....

NHS Lanarkshire

Clozapine Repeat Prescription

Community nurse name and contact details: ..... Email: ..... Phone:	Drug Allergies/Sensitivities ☐ None known ☐ Yes (provide details below)
Consultant psychiatrist name and contact details: ..... Email: ..... Phone:	

Medicine	Form (delete as applicable)	Dose and Times of administration			
		Morning	Noon	Evening	Night
Clozapine	Tablet/Liquid				

Mandatory Haematological Monitoring	Blood monitoring frequency
Clozapine patient ID number:	☐ Weekly ☐ 2 weekly ☐ 4 weekly

Prescriber's signature: ..... Date: ...../...../.....

PRINT NAME: ..... GMC No: .....

Contact details: (email) .....

(phone) .....

FOR PHARMACY USE ONLY
The following medicines are to be supplied every ☐ weeks unless otherwise informed
Collection/Delivery address: (delete as applicable)
Additional pharmacy information:
Pharmacist clinical check: (sign and date)

Prescriptions are valid for up to 12 months
All use of medicines must comply with the Medicines Code of Practice

MKClozapineprescriptions@lanarkshire.scot.nhs.uk

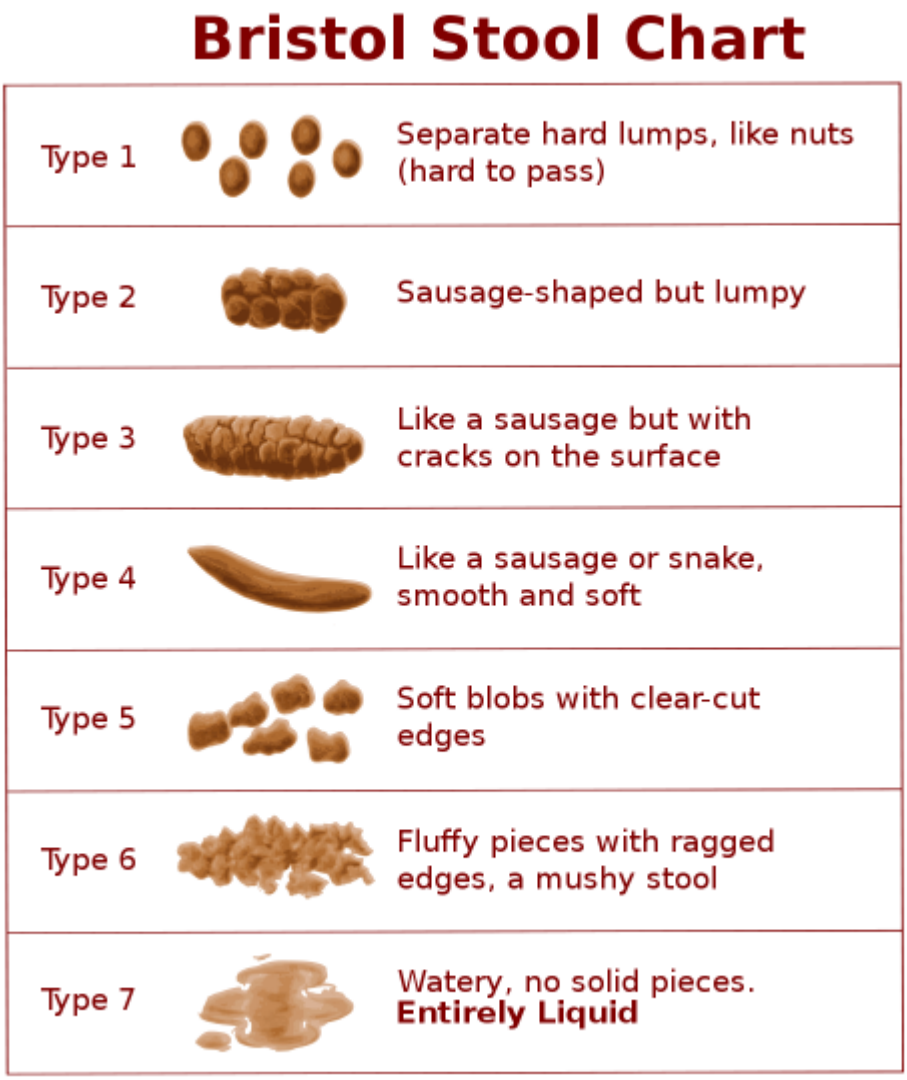
NMAHP.CLOZ.Sep23_11595.L

Clozapine Repeat Prescription | Pharmacy Services | NHSL | Page 1 of 1

Pub. date: May 2023 | Review date: May 2028 | Issue No: 03

http://firstport2/staff-support/pharmacy-mental-health/clozapine

Appendix 7 – Bristol stool chart



Appendix 8 – Physical Health Monitoring for Patients on Clozapine – Audit Tool

(from NHS Scotland Clozapine Physical Health Monitoring Standards)

Physical Health Monitoring for Patients on Clozapine - Audit Tool (Not including Full Blood Count monitoring which is subject to manufacturer's mandatory protocol*)

Name & CHI (addressograph label)	Date clozapine started Date of audit

The following monitoring should be undertaken at baseline and every subsequent point of clinical contact with the patient:

Bowel function
Blood pressure
Pulse
Side effect enquiry
Smoking status

Assessment stage	Year 1			Year 2 and ater		
	Parameter	Done	Not done		Done	Not done
Baseline	BMI Fasting glucose Blood lipids Temp ECG U&E LFT Troponin CRP Reproductive advice (women)					
Initiation phase	Weight weekly BP weekly P weekly Troponin weekly CRP weekly					
One month	Fasting glucose Troponin CRP					
3 months	BMI Blood lipids Fasting glucose ECG					
6 months	Fasting glucose BMI Blood lipids			Fasting glucose Blood lipids		
9 months	BMI Blood lipids Fasting glucose					
1 year	LFT Reproductive advice (Women) Fasting glucose BMI Blood lipids ECG			LFT Reproductive advice (Women) Fasting glucose BMI Blood lipids ECG		

Appendix 9- GASS for Clozapine

GASS for Clozapine

Name:	Date:
Caffeine intake: .....cups/day	
Smoker: Y / N .....cigarettes/day Has there been a recent change in your smoking habit? Increase/Decrease by .....cigarettes/day	

Please list current medication and total daily doses below:

_____

_____

_____

This questionnaire is being used to determine if you are suffering from excessive side effects from your medication.
Please put a tick in the column which best indicates how often or how severely you have experienced the following side effects over the past week.

	Over the past week:	Never	Once	A few times	Every day	Tick if severe or distressing
1	I felt sleepy during the day					
2	I felt drugged or like a zombie					
3	I felt dizzy when I stood up or have fainted					
4	I have felt my heart beating unusually fast or irregularly					
5	I have experienced jerking limbs or muscles					
6	I have been drooling					
7	My vision has been blurry					
8	My mouth has been dry					
9	I have felt sick (nauseous) or have vomited					
10	I have felt gastric reflux or heartburn					
11	I have had problems opening my bowels (constipation)					
12	I have wet the bed					
13	I have been passing urine more often					
14	I have been thirsty					
15	I have felt more hungry than usual or have gained weight					
16	I have been having sexual problems					

I have also experienced: (please write down any other side effects or physical problems that you may have experienced over the past week)	
17	
18	
19	
20	

Glasgow Antipsychotic Side-effects Scale for Clozapine (GASS-C)

Glasgow Antipsychotic Side-effect Scale for Clozapine (GASS-C)

Staff Information

1. Allow the service user to fill in the side-effects scale themselves. All questions relate to the previous week.

2. **Scoring**

0 Points	"Never"
1 point	"Once"
2 points	"A few times"
3 points	"Everyday"

3. **Results**

0-16	absent/mild side-effects
17-32	moderate side-effects
33-48	severe side-effects

4. **Side-effects covered include:**

1-2	Drowsiness and sedation
3	Postural hypotension
4	Tachycardia
5	Myoclonus
6	Hypersalivation
7-8	Anticholinergic side-effects
9-10	Gastrointestinal side-effects
11	Constipation
12	Nocturnal enuresis
13-14	Screening for diabetes mellitus
15	Weight gain
16	Sexual dysfunction

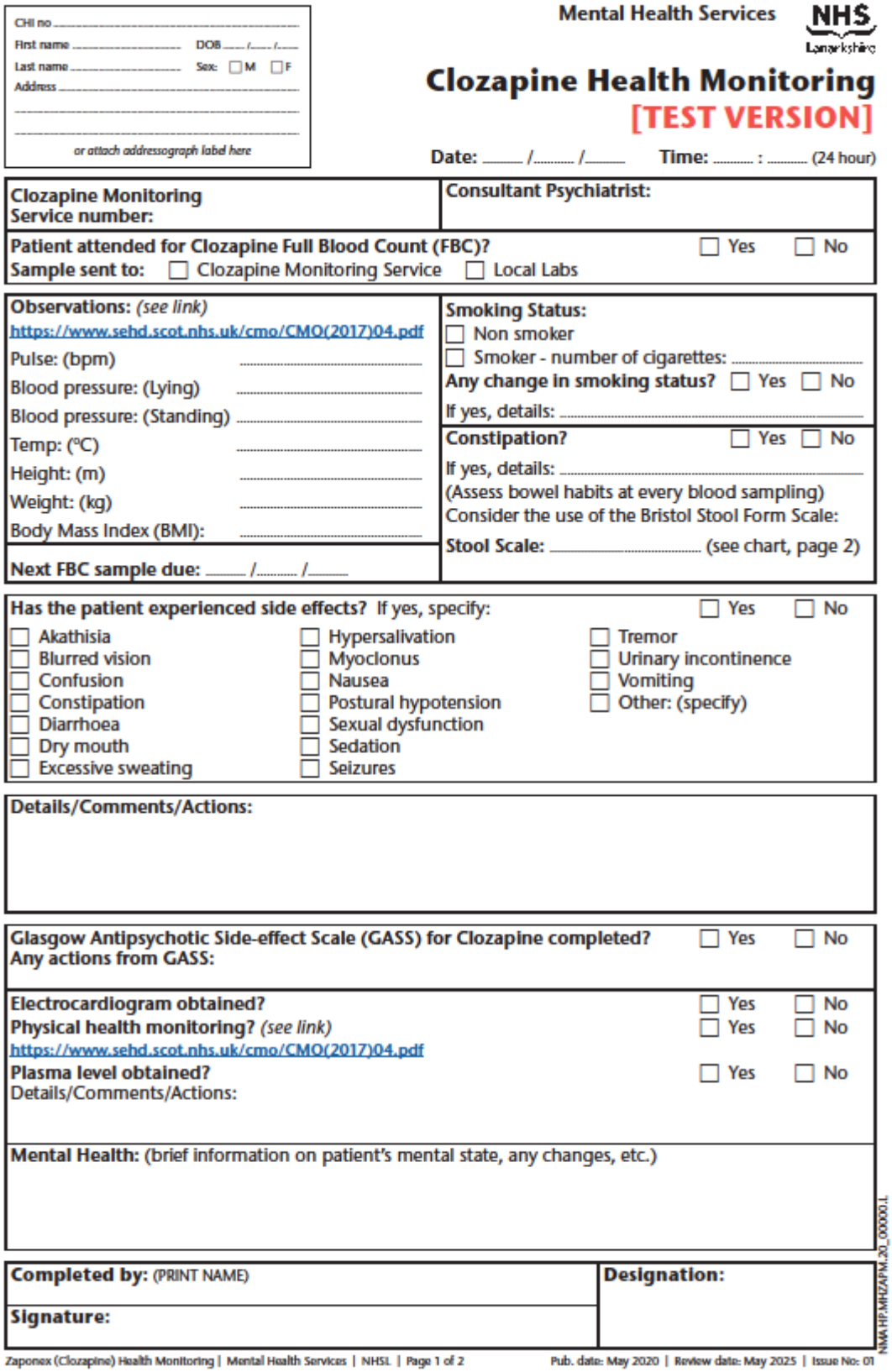
5. The column relating to the severity/distress experienced with a particular side effect is not scored, but is intended to inform the clinician of the service user's views and condition.

6. Question 17-20 invite the service used to report any other side-effects or problems not already mentioned. These questions should not be scored but may instigate a discussion with the service used if clinically appropriate.

Reference:
C. Hynes et al. Antipsychotic Side-effects Scale for Clozapine- Development and validation of a clozapine-specific side-effects scale. *Schiz Res* 2015; 168; 505-513

GASS- C Glasgow Antipsychotic Side-effect Scale for Clozapine

Appendix 10 – MORSE clozapine e-form



CHI no .....
First name ..... DOB ..../..../....
Last name ..... Sex: ☐ M ☐ F
Address .....
.....
.....
or attach addressograph label here

Mental Health Services — NHS Lanarkshire

Clozapine Health Monitoring
[TEST VERSION]

Date: ...../...../..... **Time:** ..... : ..... (24 hour)

Clozapine Monitoring Service number:	**Consultant Psychiatrist:**
Patient attended for Clozapine Full Blood Count (FBC)? ☐ Yes ☐ No **Sample sent to:** ☐ Clozapine Monitoring Service ☐ Local Labs	

Observations: *(see link)* https://www.sehd.scot.nhs.uk/cmo/CMO(2017)04.pdf	**Smoking Status:**
Pulse: (bpm)	☐ Non smoker
Blood pressure: (Lying)	☐ Smoker - number of cigarettes: .....
Blood pressure: (Standing)	**Any change in smoking status?** ☐ Yes ☐ No
Temp: (°C)	If yes, details: .....
Height: (m)	**Constipation?** ☐ Yes ☐ No
Weight: (kg)	If yes, details: .....
Body Mass Index (BMI):	(Assess bowel habits at every blood sampling) Consider the use of the Bristol Stool Form Scale:
Next FBC sample due: ...../...../.....	**Stool Scale:** ..... (see chart, page 2)

Has the patient experienced side effects? If yes, specify: ☐ Yes ☐ No

☐ Akathisia	☐ Hypersalivation	☐ Tremor
☐ Blurred vision	☐ Myoclonus	☐ Urinary incontinence
☐ Confusion	☐ Nausea	☐ Vomiting
☐ Constipation	☐ Postural hypotension	☐ Other: (specify)
☐ Diarrhoea	☐ Sexual dysfunction	
☐ Dry mouth	☐ Sedation	
☐ Excessive sweating	☐ Seizures	

Details/Comments/Actions:

Glasgow Antipsychotic Side-effect Scale (GASS) for Clozapine completed? ☐ Yes ☐ No
Any actions from GASS:

Electrocardiogram obtained? ☐ Yes ☐ No
Physical health monitoring? *(see link)* ☐ Yes ☐ No
https://www.sehd.scot.nhs.uk/cmo/CMO(2017)04.pdf
Plasma level obtained? ☐ Yes ☐ No
Details/Comments/Actions:

Mental Health: (brief information on patient's mental state, any changes, etc.)

Completed by: (PRINT NAME)	**Designation:**
Signature:	

NMA.HP.MHZAPM.20_00000.1

Zaponex (Clozapine) Health Monitoring | Mental Health Services | NHSL | Page 1 of 2 Pub. date: May 2020 | Review date: May 2025 | Issue No: 01

Appendix 11 - Clozapine one-stop clinic process

1. Clozapine blood sampling and supply occurs on a weekly, fortnightly or monthly basis depending on how long the patient has been on treatment.

<u>At the clozapine dispensing pharmacy</u>

2. Pharmacy pre-dispenses clozapine supplies for the outpatients who are due to attend the clozapine clinic in upcoming weeks.

3. Pharmacy releases clozapine and sends to the CMHT in advance (the Thursday or Friday of the week before the clinic is scheduled to take place) e.g.
   - clozapine is released in week 1 for patients who are attending the clinic in week 2
   - clozapine is released in week 2 for patients who are attending the clinic in week 3
   - clozapine is released in week 3 for patients who are attending the clinic in week 4
   - clozapine is released in week 4 for patients who are attending the clinic in week 1

4. Pharmacy email the CMHT with the ***Weekly Clozapine Return*** - the patient list with details of clozapine dispensing for the next scheduled clozapine clinic (agreement to be sought between pharmacy and CMHT staff regarding which staff this should be sent to).

<u>At the CMHT</u>

5. Clozapine supplies are received by the CMHT the week prior to the clinic and stored securely in the locked medication cupboard within the treatment room.

6. CMHT staff should check that all supplies that are expected for the upcoming clinic are accounted for and included in patient list. If there are any discrepancies, pharmacy should be contacted as soon as possible.

7. On clinic day, patients attend the clozapine clinic within the CMHT for their routine blood sample.

8. Once the patient's blood sample has been successfully obtained, and any other scheduled monitoring due is completed e.g. side effect rating scales, blood pressure, pulse, etc, they are given their pre-dispensed supply of clozapine to take away with them.

9. An entry in the patient's electronic records must be completed to record the intervention and that medication has been supplied as part of the one-stop model.

10. The patient should be given a date for next scheduled appointment according to their monitoring frequency.

11. At the end of the clinic, the CMHT staff must complete the ***Weekly Clozapine Return*** with patients who have attended the clozapine clinic that week for bloods and who have obtained their supply of clozapine via the one stop model. Any discrepancies e.g. patients who have not attended should also be communicated. This should be emailed to the generic e-mail box MKClozapineprescriptions@lanarkshire.scot.nhs.uk

At the clozapine dispensing pharmacy

12. Pharmacy will follow their processes for checking blood samples for the patients who have attended clinic (via a combination of clinical portal and the clozapine monitoring service website).

13. If a result is green, no further action is required. Pharmacy will complete feedback of results via the ***Weekly Clozapine Return*** and email back to the CMHT.

14. If a result is amber, pharmacy must phone the CMHT to advise them of the need for twice weekly blood monitoring until a green result is obtained. The patient can continue to take clozapine.

15. If a result is red, pharmacy must phone the CMHT urgently to advise them that clozapine must be stopped, with supplies removed from the patient/ quarantined and daily blood tests initiated until two successive non-red results are obtained (green, green; amber, green; green, amber; amber, amber). The red result procedure from the clozapine monitoring service will be activated.

16. If the patient's sample is unable to be processed e.g. clotted, improperly labelled, damaged, lost), pharmacy must phone the CMHT to advise of the need for an urgent repeat local blood sample.

17. All phone communication and recommended actions from pharmacy to the CMHT will be confirmed by return email of the ***Weekly Clozapine Return***

At the CMHT

18. CMHT staff must respond and action any advice from pharmacy regarding patient results.

19. If the patient is green, no further action is required. Pharmacy will send a confirmatory email of the ***Weekly Clozapine Return*** with results for all patients attending that week's clinic.

20. Following contact from pharmacy if a patient is amber, CMHT staff must contact the patient to advise them of the need for twice weekly monitoring and arrange for these to be obtained at an appropriate interval. CMHT staff should contact pharmacy to advise them when repeat samples have been obtained.

21. Following contact from pharmacy if a patient is red, CMHT staff must contact the patient urgently to advise them that they must stop taking clozapine immediately and arrange for daily follow up bloods in line with the red result procedure. Arrangements should be made to remove supplies of clozapine. This should be risk assessed and it may be appropriate to request patient to bring their clozapine supplies with them when they attend for daily blood tests the next day. If there are concerns about the patient reliably returning their medication or if there is a risk that they may continue to take clozapine, then arrangements may be needed for staff to physically remove clozapine from the patient's possession. The patient's clozapine supplies must be quarantined in the

CMHT's treatment room in a locked medication cupboard until this can be returned to pharmacy for destruction. The patient/ carer should be provided with red result information.

22. Following contact from pharmacy if a sample has been unable to be processed, CMHT staff must contact the patient urgently to advise them of the need for an urgent local blood sample. CMHT staff should contact pharmacy to advise them when repeat samples have been obtained.

23. The completed ***Weekly Clozapine Return*** received from pharmacy of the clinic list with results and any confirmation of phone communication should be filed within an agreed central location within the CMHT for audit purposes.

24. As a back-up, each week CMHT staff should access their worklist on the clozapine patient monitoring service to check that all results are in line with the advice from pharmacy.

Failure to attend procedure

25. Clozapine clinics should have a locally agreed process to follow when a patient does not attend a scheduled appointment at the clozapine clinic.

26. CMHT staff should advise pharmacy in their weekly return of any patients who have not attended and the follow up that has been arranged.

27. If a patient fails to attend their scheduled appointment at the one-stop clozapine clinic, the pre-dispensed clozapine prescription will be quarantined.

28. It can only be given to the patient if they attend for a blood sample and meet the following criteria;
    - the sample is obtained within the appropriate window of validity e.g.
      - within 10 days of the last weekly sample;
      - within 21 days of the last fortnightly sample;
      - within 42 days of the last monthly sample.
    - and the patient has not had a break in clozapine treatment in excess of 48 hours.

29. If these criteria are not met, contact pharmacy to discuss on a case by case basis.

30. CMHT staff should underline the importance of attending their scheduled appointments at the clozapine clinic.

31. CMHT staff should contact pharmacy to advise them when the delayed samples have been obtained

Clozapine 'one-stop' clinic
Weekly Clozapine Return

Clozapine clinic date w/ b_____ **CMHT Clozapine clinic**_____

For pharmacy use - weekly patient dispensing list			For CMHT use - weekly patient return to pharmacy following clinic			For pharmacy use - weekly feedback to CMHT	
Name	CHI or CPMS no.	Monitoring Frequency	Sample obtained	Clozapine supplied	CMHT Follow up/ action taken/ comments	Result	Date

Send Completed *Weekly Clozapine Return* after each clinic to MKClozapineprescriptions@lanarkshire.scot.nhs.uk