Humber Area Prescribing Committee

SHARED CARE FRAMEWORK FOR AMIODARONE

HUMBER AREA PRESCRIBING COMMITTEE

DATE APPROVED BY APC:

PATIENT NAME	*NHS NUMBER*	*DATE OF BIRTH*
ADDRESS		
GP'S NAME		

We agree to treat this patient within this Prescribing Framework

Specialist Prescriber's Name…… Prof Reg. No. ……

Specialist Prescriber's Signature…… Date:……

Where prescriber is not a consultant:

Consultant's Name: …… GMC No ……..

Consultant's Signature ……..... ……. Date:…….

GP's Name: …… GMC No ……..

GP's Signature ……..... ……. Date:…….

If the General Practitioner is unable to accept prescribing responsibility for the above patient the consultant should be informed within two weeks of receipt of this framework and consultant's / nurse specialist's letter. In such cases the GP are requested to update the consultant, by letter, of any relevant changes in the patient's medication / medical condition.

Humber Area Prescribing Committee

Shared Care Framework for Amiodarone

Responsibilities	**Specialist responsibilities** • Assess the patient for treatment with amiodarone. • Carry out baseline investigations and monitoring. • Provide patient with relevant information on use, side effects and need for monitoring. • Provide patient with a trust amiodarone patient information leaflet. • Arrange shared care framework with patient's GP. • Provide advice to primary care on the management of adverse effects if required. *For patients started on amiodarone as an outpatient, the patient will receive 4 weeks supply on a hospital outpatient prescription and the SCF completed and sent to the GP.* *For patients started on amiodarone during a hospital admission under the care of cardiology, the patient will receive 4 weeks supply on discharge and the SCF completed on the ward and sent to the GP on discharge.* *For patients started on amiodarone during a hospital admission under the care of cardiothoracic, the patient will receive 8 weeks supply on discharge. They will be reviewed in outpatient clinic and issued with a further 28 day supply and the SCF will be completed and sent to the GP if the amiodarone is to be continued.* **Primary care responsibilities** • Prescribe ongoing treatment as detailed in the specialist's request, taking into account potential drug interactions. • Stop or adjust the dose of amiodarone prescribed as advised by the specialist. • Monitor and manage adverse effects and discuss with specialist team when required. • Refer the management back to the specialist if the patient becomes or plans to become pregnant. **Patient and/or carer responsibilities** • Take amiodarone as prescribed and avoid abrupt withdrawal unless advised by the primary care prescriber or specialist. • Attend regularly for monitoring and review appointments. • Report adverse effects to their primary care prescriber. • Report the use of any over the counter medications to their primary care prescriber and discuss the use of amiodarone with their pharmacist before purchasing any OTC medicines. • Avoid grapefruit juice while taking amiodarone and for several months after discontinuation.

	• Patients of childbearing potential should take a pregnancy test if they think they could be pregnant, and inform the specialist or GP immediately if they become pregnant or wish to become pregnant.	
1. Introduction:	Amiodarone has potentially serious adverse effects and its use required regular monitoring. This SCF has been written to enable the safe and appropriate continuation of care for patients initiated on amiodarone by a hospital specialist. The SCF aims to provide a framework for the prescribing of amiodarone by primary care and to set out the associated responsibilities of primary care and hospital specialists who enter into the SCF arrangements.	
2. Indication:	Treatment should be initiated by a specialist only. Monitoring should be done by the specialist or by the GP as part of the SCF. Oral amiodarone is indicated only for the treatment of severe rhythm disorders not responding to other therapies or when other treatments cannot be used: • Tachyarrhythmias associated with Wolff-Parkinson-White syndrome. • Atrial flutter and fibrillation when other drugs cannot be used. • All types of tachyarrythmias of paroxysmal nature including: supraventricular, nodal and ventricular tachycardias; ventricular fibrillation; when other drugs cannot be used. • As an adjunctive short-term treatment prior to DC cardioversion of atrial flutter/fibrillation (unlicensed indication). Other indications fall outside of this SCF and the patient should be referred back to the original prescriber.	
3. Licensing Information	No identified additional appropriate off-label indications.	
4. Pharmaceutical Information	Route	Oral
	Formulation	Tablets; 100mg and 200mg
	Administration details	For oral administration. Maintenance dose can be given once daily, however doses >200mg daily (including loading period) may be given as split doses to minimise nausea. If necessary, tablets may be crushed and dispersed in water, but have a bitter taste (unlicensed). Different brands may disperse in water at notably different rates. The solution for injection is irritant and should not be given orally.
	Additional information	The half-life of amiodarone is very long, with an average of 50 days. Side effects slowly disappear as tissue levels fall. Following drug withdrawal, residual tissue bound amiodarone may protect the patient for up to a month, but the likelihood of recurrence of arrhythmia in this period should be considered.

5. Supporting evidence	*Include links to relevant guidance e.g. NICE TAs, national guidance*
6. Initiation on ongoing dosage regimen	A specialist should initiate the loading period of amiodarone and an oral or intravenous route may be used, according to the clinical situation and indication. Primary care should only be asked to prescribe the maintenance dose. **Loading dose** 200mg three times a day for one week, then reduce to 200mg twice a day for a further week. **Maintenance dose (following loading dose)** 200mg once a day, or the minimum dose required to control the arrhythmia. Rarely, the patient may require more than 200mg a day; if this is the case this should be managed by secondary care and not part of the SCF. The duration of treatment and frequency of review will be determined by the specialist, based on clinical response and tolerability. Termination of treatment will be the responsibility of the specialist.
7. Contraindications and Warnings:	This information does not replace the Summary of Product Characteristics (SPC), and should be read in conjunction with it. Please see BNF and SPC for comprehensive information. **Contraindications** • Sinus bradycardia and sino-atrial heart block/severe conduction distrubances (high grade AV block, bifascicular or trifascicular block) or sinus node disease (unless pacemaker fitted). • History of thyroid dysfunction. Use of amiodarone may be considered in patients who are euthyroid, after case-by-case assessment of the risks and benefits and with appropriate monitoring. • Known hypersensitivity to iodine or amiodarone, or any of the excipients. • Concurrent use with medicines that may prolong the QT interval or increase the risk of Torsades de Pointes. • Pregnancy (except in exceptional circumstances). • Breast feeding. **Cautions** • Amiodarone can cause serious adverse reactions affecting the eyes, heart, lung, liver, thyroid gland, skin and peripheral nervous system; it is subject to a number of cautions. Because these reactions may be delayed, patients on long-term treatment should be carefully supervised. As undesirable effects are usually dose-related, he minimum effective maintenance dose should be given.

<table>
<tr><td>8. Baseline investigations, initial monitoring and ongoing monitoring to be undertaken by specialist</td><td colspan="2">Monitoring at baseline and during initiation is the responsibility of the specialist; only once the patient is optimised on the chosen medication with no anticipated further changes expected in immediate future will prescribing and monitoring be transferred to primary care.

Baseline investigations
• Thyroid function tests (free T4, free T3 and TSH)
• Liver function tests (LFTs, particularly transaminases)
• Urea and electrolytes (U&Es, including magnesium and potassium)
• Electrocardiogram (ECG)
• Chest X-ray
• For patients taking warfarin: monitor international normalised ratio (INR) at baseline and during dose stabilisation period
• For patients taking digoxin: clinical monitoring is recommended and the digoxin dose should be halved

Ongoing monitoring:
ECG (if service unavailable in primary care).</td></tr>
<tr><td rowspan="6">9. Ongoing monitoring requirements to be undertaken by primary care</td><td>Monitoring</td><td>Frequency</td></tr>
<tr><td>Thyroid function tests (free T4, free T3 and TSH)</td><td>Every 6 months during treatment, and 12 months after discontinuation, with frequency determined clinically</td></tr>
<tr><td>LFTs (particularly transaminases)</td><td rowspan="2">Every 6 months during treatment, and 6 months after discontinuation</td></tr>
<tr><td>U&Es (including magnesium and potassium)</td></tr>
<tr><td>ECG</td><td>At least annually (if service available)</td></tr>
<tr><td>Chest X-ray</td><td>Referred only if respiratory symptoms or toxicity suspected</td></tr>
<tr><td rowspan="4">10. Interactions</td><td colspan="2">The following drugs are known or suspected interactions and the GP may wish to discuss with the initiating specialist before commencing:
Due to the long half-life of amiodarone, there is potential for drug interactions to occur for several weeks/months after treatment has been discontinued.</td></tr>
<tr><td>Interacting Drug</td><td>Advice</td></tr>
<tr><td>Digoxin</td><td>Increases plasma concentration of digoxin and reducing the digoxin dose by 50% is recommended</td></tr>
<tr><td>Anticoagulants</td><td>Increases anticoagulant effects. Monitor for signs of bleeding.

Dabigatran should be used with caution. It may be necessary to adjust the dose of dabigatran depending on the indication (no dose reduction</td></tr>
</table>

		for SPAF; dose reduction required for orthopaedic prophylaxis). Monitor INR at least weekly with warfarin or phenindione for 4 – 6 weeks until INR is stable, and adjust dose accordingly.
	Phenytoin	Increased risk of peripheral neuropathy when given in combination. Amiodarone can increase phenytoin concentration, monitor and adjust dose if necessary.
	Ciclosporin	Amiodarone can increase ciclosporin concentration. A reduction in the dose of ciclosporin may be necessary to maintain the plasma concentration within the therapeutic range.
	Statins	Concomitant use with amiodarone increases the risk of rhabdomyolysis. Advise patients to report any signs and symptoms of myalgia. The maximum recommended dose of simvastatin that should be used concomitantly with amiodarone is 20mg. A lower than normal maximum dose of atorvastatin should be considered.
	Flecainide	Amiodarone increases the plasma concentration of flecainide. Reduce flecainide dose by 50% and monitor for adverse effects. Monitoring of flecainide plasma levels strongly recommended.
	Grapefruit juice	May increase the plasma concentration of amiodarone by inhibiting its metabolism. Avoid whilst taking amiodarone.
	Diltiazem, verapamil and beta-blockers	Increases the risk of bradycardia and myocardial depression. It is advised that the combination of diltiazem or verapamil and amiodarone is avoided. Monitor heart rate 6 monthly if a patient is already established on beta-blocker therapy; monitor heart rate 2 – 3 weeks after introducing or altering beta-blocker therapy.
	Medicines that prolong the QT interval	Co-administration of amiodarone with drugs known to prolong the QT interval (e.g. clarithromycin) must be based on assessment of the potential risks and benefits for each patient, since the risk of Torsades de Pointes may increase and patients should be monitoring for QT prolongation.

		Use of amiodarone is contraindicated with the following drugs which prolong the QT interval: • Moxifloxacin (amiodarone should also be avoided with other fluoroquinolones) • Class Ia anti-arrhythmic drugs (e.g. quinidine, procainamide, disopyramide) and class III anti-arrhythmic drugs (e.g. sotalol, bretylium). • IV erythromycin, co-trimoxazole or pentamidine injection • Lithium and tricyclic anti-depressants (e.g. doxepin, maprotiline, amitriptyline) • Some antihistamines (e.g. terfenadine, astemizole, mizolastine) • Anti-malarials (e.g. quinine, mefloquine, chloroquine, halofantrine) • Sildenafil
	Sofosbuvir in combination with another hepatitis C virus acting antiviral (e.g. daclatasvir, simeprevir, or ledipasvir)	Can cause severe bradycardia and heart block. Co-administration of amiodarone with these agents is not recommended. If co-administration cannot be avoided, patients should be closely monitored when initiating sofosbuvir in combination with other DAAs. Patients should be closely monitored, particularly during the first weeks of treatment. Patients at high risk of bradycardia should be monitored continuously for at least 48 hours in an appropriate clinical setting. Patients should be informed of the signs and symptoms of bradycardia and heart block and advised to urgently report them to a medical professional should they occur.
	Other interacting agents: *If immunosuppressant include vaccines info here* **For full list see SPC at www.medicines.org.uk/emc and BNF**	
11. Adverse effects and management	Adverse effects	Action for GP
	Electrolyte deficiency	Continue amiodarone. Correct deficiency as per local guidelines. Review other medicines that may be contributing to a deficiency.
	Cardiovascular	
	Bradycardia: heart rate 50 – 60bpm without symptoms	Continue amiodarone. Repeat monitoring. No action required unless symptoms develop or heart rate decreases further.
	Bradycardia: heart rate ≤50bpm, or	Discuss with specialist team; dose reduction may be required.

	≤60bpm with symptoms	
	Worsening of arrhythmia, new arrhythmia, or heart block	Stop amiodarone. Urgent referral to initiating specialist.
	Thyroid dysfunction	
	Hyperthyroidism / thyrotoxicity	An increase of up to 40% above the baseline T4 is a normal effect of amiodarone. This occurs approximately 2 months after initiation of therapy and dose nor require discontinuation. If the patient becomes thyrotoxic, stop amiodarone and refer for specialist endocrine advice immediately.
	Hypothyroidism	Continue amiodarone. If results show hypothyroidism and clinical hypothyroidism (weight gain/fatigue/bradycardia), consider starting levothyroxine and monitor as per national guidance. If euthyroid, recheck TFTs in 4 weeks. Inform initiating consultant and refer for endocrine opinion if uncertain or patient is unstable.
	Ophthalmological effects	
	Optic neuropathy/neuritis	Stop amiodarone. Urgent referral to initiating specialist and ophthalmology.
	Corneal micro deposits	Continue amiodarone; reversible on discontinuation. The deposits are considered essentially benign and do not require discontinuation of amiodarone.
	Gastrointestinal	
	Nausea, anorexia, vomiting, taste disturbances	Continue amiodarone. May require dose reduction; discuss with specialist if persistent.
	Hepato-biliary disorders	
	Liver toxicity	Increase in serum transaminases are very common early in therapy and may resolve spontaneously. If serum transaminases elevated >3xULN but no symptoms of hepatic injury continue amiodarone and repeat LFTs in 2 weeks. If still elevated may require dose reduction; discuss with specialist. If serum transaminases >5xULN or any symptoms of hepatic injury – stop amiodarone and urgent referral to initiating specialist and hepatologist.
	Neurological symptoms	

	Extrapyramidal tremor, ataxia, peripheral neuropathy, myopathy	Continue amiodarone. May require dose reduction; discuss with specialist
	Respiratory	
	Pulmonary toxicity, including pneumonitis or fibrosis, new/worsening cough, shortness of breath or deterioration in general health (e.g. fatigue, weight loss, fever).	Stop amiodarone. Urgent referral to initiating specialist and respiratory specialist. Admission may be required.
	Skin	
	Life threatening or even fatal cutaneous reactions Stevens-Johnson Syndrome (SJS), Toxic Epidermal Necrolysis (TEN)	Stop amiodarone. Urgent referral to dermatology, inform initiating specialist.
	Photosensitivity	Continue amiodarone. Reinforce appropriate self-care e.g. sun avoidance and purchasing of a broad spectrum sunscreen (at least SPF30).
	Skin discolouration (blue/grey)	Continue amiodarone. Reinforce self-care measures (as for photosensitivity above). Pigmentation slowly disappears following treatment discontinuation.
12. Advice to patients and carers The specialist will counsel the patient with regard to the benefits and risks of treatment and will provide the patient with any relevant information and advice, including patient information leaflets on individual medicines.	**The patient should be advised to report any of the following signs or symptoms to their GP without delay:** • Breathlessness, non-productive cough or deterioration in general health (e.g. fatigue, weight loss, fever). • New or worsening visual disturbances. • Progressive skin rash +/- blisters or mucosal lesions • Signs and symptoms of bradycardia or heart block **The patient should be advised:** • To use appropriate self-care against the possibility of phototoxic reactions e.g. sun avoidance, protective clothing, avoiding tanning (including tanning beds) and to purchase and use a broad spectrum sunscreen (at least SPF30). These measures to be continued for the duration of therapy and for several months after discontinuation.	

	• If taking a statin and amiodarone, to report any signs of unexplained muscle pain, tenderness, weakness or dark coloured urine. • Avoid grapefruit juice while taking amiodarone and for several months after discontinuation. Patient information: **British Heart Foundation – anti-arrhythmics:** https://www.bhf.org.uk/informationsupport/heart-matters-magazine/medical/drug-cabinet/anti-arrhythmics
13. Preconception, Pregnancy, paternal exposure and breast feeding It is the responsibility of the specialist to provide advice on the need for contraception to male and female patients on initiation and at each review but the ongoing responsibility for providing this advice rests with both the GP and the specialist.	**Preconception** Amiodarone has a very long elimination half-life. To avoid foetal exposure it would need discontinuing several months prior to conception. Patients who are planning on becoming pregnant or who become while on amiodarone should be referred to cardiology. **Paternal Exposure** **Pregnancy:** Due to the risk of neonatal goitre, amiodarone should only be prescribed in pregnancy if there is no alternative. Under these circumstances prescribing and monitoring will be the responsibility of the initiating specialist. **Breastfeeding:** Amiodarone is excreted into the breast milk in significant quantities; breast-feeding is considered contraindicated due to the potential risk of iodine-associated adverse effects in the infant.
14. Specialist contact information	**During office hours:** Contact the relevant consultant's secretary (as per clinic letter) via HUTH switchboard – 01482 875875 Specialist pharmacists: Cardiology pharmacist: Yvonne Holloway – 01482 624105 Cardiothoracic pharmacist: Samuel Tandoh – 01482 624195 **Out of hours:** Contact on-call registrar for cardiology via HUTH switchboard – 01482 875875
15. Local arrangements for referral Define the referral procedure from hospital to primary care prescriber & route of return should the patient's condition change.	The specialist will inform the GP when they have initiated amiodarone and when there are any subsequent changes in treatment – standard clinic letter. Send a copy (either electronically or paper copy) of the Shared Care Guideline to the GP and ask whether they are willing to participate in shared care. For urgent enquiries contact on call cardiologist via switchboard. Advice and guidance can be sought via A&G portal for non-urgent enquiries.

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16. To be read in conjunction with the following documents	https://www.england.nhs.uk/wp-content/uploads/2018/03/responsibility-prescribing-between-primary-secondary-care-v2.pdf

Document and version control	**This information is not inclusive of all prescribing information and potential adverse effects. Please refer to the SPC (data sheet) or BNF for further prescribing information.**		
	Date approved by Guidelines and SCF Group:		19th July 2023
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	Review date:		August 2026
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V2	Hannah Smailes	Clinical Pharmacist	Transferred onto new template