Worcestershire Acute Hospitals NHS Trust

Nurse-Led DC Cardioversion Guideline

This guidance does not override the individual responsibility of health professionals to make appropriate decision according to the circumstances of the individual patient in consultation with the patient and /or carer. Health care professionals must be prepared to justify any deviation from this guidance.

Introduction

The nurse-led elective outpatient cardioversion service has been established to provide direct current cardioversion to stable patients who are diagnosed with a supraventricular dysrhythmia by a Cardiologist and referred to the services by them.

This guideline is for use by the following staff groups :

All clinical staff

Lead Clinician(s)

Dr Helen Routledge	Consultant Cardiologist
Approved by Cardiology Directorate Meeting on:	15th September 2023
Approved by Medicines Safety Committee on:	11th October 2023
Review Date: This is the most current document and is to be used until a revised version is in place	15th September 2026

Key amendments to this guideline

Date	Amendment	Approved by:
July 2013	New Guideline	
October 2015	Document extended for 12 months as per TMC paper approved on 22nd July 2015	TMC
October 2016	Further extension as per TMC paper approved on 22nd July 2015	TMC
February 2018	Document reviewed and amended to include the increased amount of Midazolam to 10mg, which is an increase from 7.5mg. Document Approved for two years.	Cardiology Business Meeting
April 2020	Document reviewed and approved virtually due to COVID	Cardiology Business meeting/Clinical Lead
2023	Document reviewed and amended to include the increase of patients from 5 to 6. Withholding of digoxin prior to DC Cardioversion.	Cardiology directorate meeting.

Nurse-Led DC Cardioversion Guideline

Aim:

- To provide a safe sustained DC Cardioversion list.
- To reduce waiting times.

Team of Staff

2 Cardiac specialist Nurses, 1-day case nurse.

Competencies

- 6 supervised DC Cardioversions: - The Cardiac Specialist Nurses will lead this service. Competence will be assessed by individuals performing 6 DC Cardioversion each and being assessed by Lead CNS for DC Cardioversion.
- Advance Life Support
- Advanced ECG interpretation skills
- Health assessment
- Non-Medical Prescribing
- Cannulation skills.
- In depth knowledge of conscious sedation
- PGD competencies (Midazolam & Flumazenil)

Accountability

NMC
NICE
Local Trust policy

Location – Alexandra General Hospital

Birch unit (day case)
Pacing room (Coronary care)

Location – Worcestershire Royal Hospital

Day case unit-Aconbury 1.
Cardiology procedure room- Aconbury 1.
Pacing theatre.

Guideline

- Patients will initially be referred to a Cardiologist where Atrial arrhythmia will be identified.
- Echocardiogram may be requested and reviewed by the Cardiologist to assess structure and cardiac function- the patient will be referred to the Cardiac Nurse Specialist Team.
- The patient must always be fully anticoagulated before the procedure can take place.
- If the patient is prescribed a Direct oral anticoagulant (DOAC) e.g.Dabigatran, Rivaroxaban, Apixaban or Edoxaban they can be added to the DC Cardioversion list after 3 weeks of uninterrupted anticoagulation.
- Patients who are treated with warfarin must have weekly blood tests for INR and can be listed for DC Cardioversion when their INR has been >2.0 for 3 consecutive weeks. They are advised to contact the cardiology secretaries who will allocate the next available date. They must continue to have weekly INR checks to ensure that they remain within therapeutic range. Any concerns about their INR should be reported to the consultant or cardiology secretaries for escalation.
- The patient will require a telephone Pre-assessment appointment which will be conducted prior to their DC Cardioversion.
- Patients who are taking digoxin will be asked to withhold this for 24 hours' prior DCC Cardioversion.
- The patient's details will be entered on a database for audit purposes.
- Patients will be asked to attend day-case unit either at the Alexandra general hospital or the Worcestershire Royal Hospital
- Patients that have ICD and CRT-D devices will have their DC Cardioversion carried out at Worcestershire Royal Hospital. Device interrogation will be performed post procedure.
- Consent will be discussed at pre assessment and a consent form along with patient information leaflet will be posted to the patient after their pre-assessment clinic appointment. Consent will be confirmed on the day of the procedure.
- Baseline observations and ECG will be performed by the staff. If the ECG still demonstrates Atrial arrhythmia, then the procedure can proceed. All documentation will be via the DC Cardioversion care pathway.
- The patient will require intravenous access. Once the patient has intravenous access, they will be transferred via a trolley to the pacing room/ procedure room for their DC Cardioversion.
- The patient will be attached to the cardiac defibrillator via the three leads to monitor the heart rhythm, they will also be attached to the defibrillator via two defibrillator pads (once excess hair removed and skin prepared). Defibrillator pads will be positioned in either the anterior posterior or anterior lateral position. The defibrillator will be set to **synchronised mode.**

- BP cuff and SPO2 monitoring will be attached to the patient during the procedure and Oxygen therapy initiated if oxygen saturations are <95% (if not known C02 retainer).

- Cannula will be flushed with 0.9% sodium chloride to ensure patency.

- Intravenous Midazolam will be administered in increments to achieve adequate sedation as per the local guideline and National Patient Safety Association Guidance (Maximum total of 10 mg). If the patient requires further amounts of Midazolam this will be discussed with a member of the Cardiology team (Consultant/Registrar). Flumazenil and atropine will be available during the procedure.

- Once the patient is adequately sedated, the shock will be delivered safely. A clinical judgement is made for individual selection. 100-150 joules are selected for atrial flutter patients, and 120-200 joules for atrial fibrillation. After the shock has been delivered, a rhythm strip will be obtained. If the first shock has not been successful, the energy will be increased incrementally, and further shocks delivered – up to a maximum of 3. Further sedation will be given if necessary. If the patient has sinus rhythm after a shock is delivered but reverts to AF this will be noted as successful DCCV and any sinus beats documented after each shock. If the patient does not revert to normal sinus rhythm the activity will be deemed as an unsuccessful DC Cardioversion. (Any deviation from the guideline will be discussed with the Cardiologist and documented in the care pathway).

- Once the procedure is completed, the patient will be recovered in either Day Case unit at Worcestershire hospital site or Birch Day Case unit at the Alexandra site.

- Vital parameters are monitored every 15 minutes in the first hour followed by 30-minute observations until patient is fully awake. If the patient is not waking adequately after 45 minutes the Cardiac Nurse Specialists will be notified; Flumazenil may be indicated to reverse the Midazolam effect. As the use of Flumazenil is a never event this needs to be documented via Datix.

- Once the patient is alert, food and drink will be offered. The patient will be encouraged to mobilise

- An ECG will be repeated an hour post procedure. Patients will be seen by the Cardiac Nurse Specialist prior to discharge.

- Safe discharge will be facilitated by the recovery staff. Patients should be accompanied home by a responsible adult who should stay with them for at least 12 hours if they live alone. **Prior to discharge patients should have returned to their baseline level of consciousness.** The patient will be advised that they must not drive a car, operate machinery, sign legal documents or consume any alcohol for 24 hours after sedation.

- Cardiac Nurse Specialist will communicate the outcome of the procedure to the patient's GP via letter; a copy will be given to the patient.

- An appropriate follow up appointment will be made, and the results communicated to the patient's cardiologist.

MONITORING TOOL

How will monitoring be carried out?

- The service will be audited over a 6-month period. The results will be presented at the cardiology directorate meeting
- The lead for Nurse-led Cardioversion will monitor the compliance with the guideline with the aid of competency portfolio and will direct users to utilise the guideline and document any deviation

References:

- British National Formulary 2022
- Department of Health (2009) Reference guide to consent for examination or treatment 2nd edition. www.gov.uk
- National Institute for Health and Care Excellence (2021) Atrial Fibrillation: Diagnosis and Management CG 196 www.nice.org.uk
- National patient safety agency (2008) Reducing the risk of overdose with midazolam injection in adults. www.npsa.nhs.uk/rrr NPSA/2008/RRR011: NHS Improvement 2018.
- Cullinane M. Gray A J G (2004) NCEPOD scoping our practice. www.ncepod.org.uk
- Worcestershire Acute Hospitals NHS Trust (2021) Patient group directions. Midazolam injection 5mg/ml
- Worcestershire Acute Hospitals NHS Trust (2018) Reducing the risk of overdose with Midazolam Injection in adults.
- Worcestershire Acute Hospitals NHS Trust (2021) Guideline for conscious sedation practice in adult endoscopy.
- Worcestershire Acute Hospitals NHS Trust (2021) Patient group directions. Flumazenil 100mcg/ml

CONTRIBUTION LIST

Key individuals involved in developing the document

Name	Designation
Julie carson	Senior Cardiology Specialist Nurse
Dr Helen Routledge	Consultant Cardiologist
Dr William Foster	Consultant Cardiologist
Dr David Smith	Consultant Cardiologist
Kerry O'Dowd	Cardiology Specialist Nurse lead.

Circulated to the following individuals for comments

Name	Designation
Kerry O 'Dowd	Matron
Jo Kenyon	Manager for Cardiology
Katherine Jackson Dr Jasper Trevelyan Katherine Smith	Ward Manager CCU/Laurel 1 Medical Director Cardiology Pharmacist

Circulated to the following CD's/Heads of dept for comments from their directorates / departments

Name	Directorate / Department
	Director of Nursing

Circulated to the chair of the following committee's / groups for comments

Name	Committee / group

Supporting Document 1 – Equality Impact Assessment form

To be completed by the key document author and included as an appendix to key document when submitted to the appropriate committee for consideration and approval.

Please complete assessment form on next page;

Herefordshire & Worcestershire STP - Equality Impact Assessment (EIA) Form
Please read EIA guidelines when completing this form

Section 1 - Name of Organisation (please tick)

Herefordshire & Worcestershire STP		Herefordshire Council		Herefordshire CCG	
Worcestershire Acute Hospitals NHS Trust	x	Worcestershire County Council		Worcestershire CCGs	
Worcestershire Health and Care NHS Trust		Wye Valley NHS Trust		Other (please state)	

Name of Lead for Activity	**Julie Carson**

Details of individuals completing this assessment	**Name**	**Job title**	**e-mail contact**
	Julie Carson	**Senior cardiology CNS**	**Julie.carson3@nhs.net**
Date assessment completed	**15/09/2023**		

Section 2

Activity being assessed (e.g. policy/procedure, document, service redesign, policy, strategy etc.)	**Title: Policy procedure guideline. Cardioversion.**			
What is the aim, purpose and/or intended outcomes of this Activity?	To ensure up to date guidelines. To ensure patient safety. To look at the service and see how we might improve the service.			
Who will be affected by the development & implementation of this activity?	✠ ✠ ❑ ❑	Service User Patient Carers Visitors	✠ ❑ ❑ ❑	Staff Communities Other _____
Is this:	✠ Review of an existing activity ❑ New activity			

	❑ Planning to withdraw or reduce a service, activity or presence?
What information and evidence have you reviewed to help inform this assessment? (Please name sources, eg demographic information for patients / services / staff groups affected, complaints etc.	Looked at updated guidelines. Had consultant involvement in updating the guidelines and feedback has been actioned. Any feedback was reviewed by the team. Used patient feedback regarding pre-assessment process.
Summary of engagement or consultation undertaken (e.g. who and how have you engaged with, or why do you believe this is not required)	This was reviewed in the directorate meeting firstly for any comment's and changes and then for final approval. The CNS team have also been involved in the changes.
Summary of relevant findings	

Section 3

Please consider the potential impact of this activity (during development & implementation) on each of the equality groups outlined below. **Please tick one or more impact box below for each Equality Group and explain your rationale**. Please note it is possible for the potential impact to be both positive and negative within the same equality group and this should be recorded. Remember to consider the impact on e.g. staff, public, patients, carers etc. in these equality groups.

Equality Group	Potential positive impact	Potential neutral impact	Potential negative impact	Please explain your reasons for any potential positive, neutral or negative impact identified
Age		x		The service is for those of any age and it is dependant on consultant
Disability	x			Those with other conditions that could impact having this procedure the medications are taken into consideration at pre assessment. Such as HF meds.
Gender Reassignment				
Marriage & Civil Partnerships				
Pregnancy & Maternity				
Race including Traveling Communities				
Religion & Belief	x			

Equality Group	Potential positive impact	Potential neutral impact	Potential negative impact	Please explain your reasons for any potential positive, neutral or negative impact identified
Sex	X			Positive impact as we are now able to mix lists so priority can be given to those needing the procedure the most without having to look for a specific female or male list.
Sexual Orientation				
Other Vulnerable and Disadvantaged Groups (e.g. carers; care leavers; homeless; Social/Economic deprivation, travelling communities etc.)				
Health Inequalities (any preventable, unfair & unjust differences in health status between groups, populations or individuals that arise from the unequal distribution of social, environmental & economic conditions within societies)				

Section 4

What actions will you take to mitigate any potential negative impacts?	Risk identified	Actions required to reduce / eliminate negative impact	Who will lead on the action?	Timeframe
	Those patients taking a number of anti-arrhythmic medications.	*.To ensure a through pre-assessment takes place to identify medications which may need to be withheld. Also position on the list as those who may need extra recovery will need to be put at the start of the list*	**Julie Carson**	**Monitor in 3 months then regular audits**
How will you monitor these actions?	**Regular audit is undertaken.**			

When will you review this EIA? (e.g in a service redesign, this EIA should be revisited regularly throughout the design & implementation)	**This will be reviewed along with guidelines.**

Section 5 - Please read and agree to the following Equality Statement

1. Equality Statement

1.1. All public bodies have a statutory duty under the Equality Act 2010 to set out arrangements to assess and consult on how their policies and functions impact on the 9 protected characteristics: Age; Disability; Gender Reassignment; Marriage & Civil Partnership; Pregnancy & Maternity; Race; Religion & Belief; Sex; Sexual Orientation

1.2. Our Organisations will challenge discrimination, promote equality, respect human rights, and aims to design and implement services, policies and measures that meet the diverse needs of our service, and population, ensuring that none are placed at a disadvantage over others.

1.3. All staff are expected to deliver services and provide services and care in a manner which respects the individuality of service users, patients, carer's etc, and as such treat them and members of the workforce respectfully, paying due regard to the 9 protected characteristics.

Signature of person completing EIA	*J.carson*
Date signed	28/09/2023
Comments:	
Signature of person the Leader Person for this activity	J.carson
Date signed	28/09/2023
Comments:	

Supporting Document 2 – Financial Impact Assessment

To be completed by the key document author and attached to key document when submitted to the appropriate committee for consideration and approval.

	Title of document:	Yes/No
1.	Does the implementation of this document require any additional Capital resources	N
2.	Does the implementation of this document require additional revenue	N
3.	Does the implementation of this document require additional manpower	N
4.	Does the implementation of this document release any manpower costs through a change in practice	N
5.	Are there additional staff training costs associated with implementing this document which cannot be delivered through current training programmes or allocated training times for staff	N
	Other comments: By this activity being taken over by the Cardiac sisters, it free up trolleys in cardiac catheter lab, cardiac lab staff and cardiologists and registrars time performing the activity and follow up letter.	

If the response to any of the above is yes, please complete a business case and which is signed by your Finance Manager and Directorate Manager for consideration by the Accountable Director before progressing to the relevant committee for approval