



ECG (12 Lead Electrocardiogram)

Policy number and category	C40	Corporate Governance
Version number and date	4	September 2024
Ratifying committee or executive director	Physical health committee Clinical Effectiveness Group	
Date ratified	October 2024	
Next anticipated review	October 2027	
Executive director	Executive Director of Quality and Safety (Chief Nurse)	
Policy lead	Lead Nurse for Physical Health	
Policy author (if different from above)		
Exec Sign off Signature (electronic)		
Disclosable under Freedom of Information Act 2000	Yes	

Policy context

An Electrocardiogram (ECG) is the gold standard of care when assessing and monitoring heart and cardiovascular conditions. Within Birmingham and Solihull Mental NHS Health Foundation Trust (BSMHFT), including the prison service, staff will be required to offer an ECG to some service users. This policy outlines the expected quality standard required when undertaking ECGs.

This policy included the standard operational procedure, delivery, reporting of an ECG. It includes the referral process to the central team.

The ECG procedure can be delivered by any competent, trained trust staff member, or by the central dedicated team.

Policy requirement (see Section 2)

All staff employed by BSMHFT (including HMP Birmingham) must ensure that they work within the guidelines laid down by the relevant professional bodies and the Medicines and Healthcare Products Regulatory Agency (MHRA) **as per the SCST consensus guidelines**. (Campbell, Richley, Ross, & Eggett, 2017)

All staff involved in the taking or interpretation of ECGs must follow the agreed procedure.

The policy also includes the workings of the ECG service which is currently available for the whole of Birmingham & Solihull Mental Health Trust which is available to both community service users and those residing in "in-patient" units.

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1. Introduction:

1.1. Rationale

Birmingham and Solihull Mental Health NHS Foundation Trust (BSMHFT) is committed to ensuring a high standard of physical health care is given to service users. As part of that care, staff must be able to acknowledge their physical health needs and ensure we do everything possible to support these service users at risk of cardiovascular disease (whether lifestyle related or related to the medication we prescribe.) (Denes, Larson, Lloyd-Jones, Prineas, & Greenland, 2007) (Tung, 2021)

An ECG is a non-invasive procedure used to obtain information about the electrophysiology of the heart, including the heart rate and rhythm. It is representation of the heart's electrical activity during depolarisation and repolarisation recorded from electrodes placed on the body surface, that enable pathology to be localised to particular regions of the heart.

An ECG is still regarded as a gold standard investigation and is often the first diagnostic test performed in people at risk of heart disease, starting antipsychotic medication, monitoring QTC intervals, those who may require Rapid Tranquillisation (Birmingham and Solihull Mental Health Foundation Trust Policy, 2023) or in service users with previously diagnosed heart disease or at risk of a cardiac event. The portability, low cost and ease of operations means that ECG's can be recorded quickly and easily by a wide variety of personnel in a number of clinical locations throughout the trust (including clinics and inpatient settings)

This policy provides guidance to ensure that ECGs are performed in line with national recommended consensus guidelines, ensuring consistency across all departments of the trust and prison. (Osipov, Behzadi, Kane, Petrides, & Clifford, 2015) (NICE, 2023) (NICE, 2010) (NICE, 2008)

1.2. Scope

The policy is relevant for all staff requesting, taking, or reporting ECG within BSMHFT, this includes those under the care of Prison healthcare services.(with their own internal processes)

The interpretation of the recording should only be completed by professionals deemed suitably qualified to do so, (such as doctors, external interpretation providers, or trained clinicians.)

1.3. Principles (beliefs):

The policy sets out the following specific objectives:

- All staff will be aware of their roles and responsibilities related to ECG requests, recordings, and interpretations.
- All staff whose job description requires them to undertake the procedure of taking an ECG will have achieved competency that is recognised by the trust.
- All staff will be expected to work within their own competency framework.

- Competence in taking ECG's will be reviewed annually with a competency assessment. The ECG competency register is available on Connect. [Electrocardiogram \(ECG\) \(sharepoint.com\)](#)
- When there is a need to refer to the trust ECG service, referrals will be made via the Rio clinical system to ensure appropriate safety advice will be available to the ECG technicians.
- Once indicated, the ECG recordings will be carried out in a timely manner according to its urgency.
- ECG's will be recorded safely and accurately.
- There will be clear communication with the service user, the mental health clinical team and the primary care provider.
- The Trust positively supports individuals with learning disabilities and ensures that no-one is prevented from accessing an ECG investigation. Staff will collaborate with colleagues from learning disabilities services and other organisations, to ensure that service users and carers have a positive episode of care whilst in our services. Information is shared appropriately to support this.

2. The policy

- All staff employed by BSMHFT and complete ECGs, must ensure that they work within the guidelines laid down by the relevant professional bodies and the Medicines and Healthcare Products Regulatory Agency (MHRA). (Campbell, Richley, Ross, & Eggett, 2017)
- All staff involved in the taking of or interpretation of ECGs must follow the agreed procedure.

This policy should be disregarded if the service user develops acute chest pain, becomes unwell or collapses. The first priority is always to follow the resuscitation guidelines and secure immediate help by way of calling 999 and following emergency procedures.

2.1. This policy should be read and considered in conjunction with the following Trust policies and clinical guidelines:

Policies:

- C07 - HMP Medicine Possession Policy
- C04 - Management of the Deteriorating Patient Policy
- C03 - Rapid Tranquilisation policy
- C38 - Physical Health Assessment Policy

Guidelines:

- The Pharmacological Management of Schizophrenia
- Use of Clozapine guidelines

3. The procedure

- An ECG can be completed by locally trained staff or by the trusts own ECG service.
- A person with an SMI diagnosis is at risk of a health inequality due to cardiovascular health conditions. The ECG is an excellent tool in recognise physical health complications and can support with reducing cardiovascular risk when prescribing some antipsychotic medication.
- Completing a prompt ECG helps to reduce this health inequality by ensuring any underlying condition or any side effects from our medication is managed appropriately.
- Please note, there is no expectation for our mental health specialists to manage cardiovascular conditions, our service users have the same rights to physical health specialists (GPs, cardiologists etc) as the general population. Having the information from an ECG should be shared with the most appropriate specialist to reduce any risk of health inequalities, especially with those with protective characteristics. (NHS England, 2024)
- It is recommended that the MDT team decides the most appropriate option for the individual service users (recognising the service users own particular needs) and the resource available within the team.

3.1. Clinical Skills and knowledge needed to complete an ECG.

- To complete an accurate ECG locally, the team needs to ensure they have staff with the necessary skills and knowledge to complete the process with the following recommendations.
 - It is recognised as part of their role.
 - They are confident in their abilities.
 - They have completed all the necessary training.
 - Practitioners should be frequently undertaking ECGs to maintain competency. (Singh & Kapoor, 2022)

3.2. Training Requirements

- All staff required to take ECG recordings as part of their job role must have undergone training and complete a competency framework to ensure consistency, minimise risk, have the knowledge, and clinical competence needed. (Salerno, Alguire, & Waxman, 2003) (Crawford & Doherty, 2010)
- Must attend an annual update to maintain competence. Medical staff that carry out ECGs are responsible for maintaining their own competencies.
- Those wishing to attend training has the responsibility, in conjunction with their line manager's approval, to request and attend the training and complete the competency framework.
- It is the individual staff members' responsibility, in conjunction with their line manager's approval, to request and complete the required annual update. (Wolff, Long, McComb, Richley, & Mercer, 2012)

3.3. Practitioners who fulfil the above criteria can record an ECG if:

- The ECG has been requested by a clinician as part of the service users care plan and their treatment needs.
- The patient has consented for the procedure in line with 'Consent to treatment guidelines (NHS , 2022)
- The correct procedure is adhered to for recording an ECG as set out in this policy.
- A person skilled in the interpretation of the ECG's will be available to review the report in a timely manner (this includes sending to our external interpretation service).
- As a registered clinician, if you delegate recording an ECG to other health care workers, (i.e. health care assistants), you must ensure that both you and the other health care worker are satisfied they have the competency to undertake the procedure.

3.4. Staff should not proceed with the recording of an ECG if:

- The patient develops chest pain, becomes unwell or collapses. The first priority is to immediately deal with the MedEm by way of calling 999 for an ambulance or by using emergency procedures in the clinical area.
- The practitioner is not confident with their competence level.
- The ECG competency framework has not been completed or achieved (or equivalent training for a doctor)
- The patient does not consent to the procedure.
- There is a risk to the practitioner's safety.
- There is no system in place to report on the recording.
- There is not a suitable place to carry out the ECG.

3.5. Assessment Process

- Service users should be seen in a clinic/treatment room, bedroom on the ward with privacy and space or private space at home and given dignity for the duration of the test. ([Appendix 3](#) and [4](#))
- The service user will need to reveal their chest area to allow 6 electrodes to be applied to the chest wall and 1 electrode to each limb. Once applied, a cover must be applied to respect their modesty.
- The process should not take more than 10-15 minutes in total.
- The trace will be uploaded onto **Rio on the same day; however, a hard copy of the trace can be given to the service users (printed from Rio) to take to their GP with an accompanying letter if it is deemed necessary.
- **In the prison service this information should be recorded in the S1 prison healthcare record.

3.6. Consent

- Service user's referred for ECG will have consented to undertake this procedure, in accordance with the consent to treatment guidelines (NHS , 2022) (NICE (National Institute for Health and Care Excellence), 2021)
- Where the service user lacks capacity, and the service user refuses to have an ECG, the MDT will make a clinical decision on how to proceed dependant on the individual circumstances, current medication prescribed and their clinical need. The clinical team will discuss this fully with the person taking the ECG and support them throughout the procedure.

3.7. Equipment requirements for the safe recording of an ECG:

- All ECG machines should be serviced and calibrated annually or in line with the manufacturer's guidelines. The responsibility for calibration lies with the individual service or practice who owns/hosts the machine.
- The ECG machine must be checked for safety prior to the procedure being undertaken by the health worker performing the trace. Any faults with the machine must be recorded and the machine placed out of order until they have been rectified.
- It should be noted that the ECG machines used by BSMHFT incorporate rhythm diagnosis software. Although accurate to a degree they are not definitive, this should never be used over clinical judgement.
- Axillary equipment required should be in date and fit for purpose. Please see [Appendix 2](#) for approved equipment and sundries to order for the ECG machine.
- The room that is used to carry out ECGs must be fit for purpose and contain equipment as outlined in [Appendix 3](#).

3.8. The procedure for recording a 12 lead ECG.

- The procedure for preparation, placement, recording, and post procedure is to be followed by competent practitioners in line with the 'SCST clinical guidelines by consensus (Campbell, Richley, Ross, & Eggett, 2017) and is available in [Appendix 4](#).

3.9. The External Interpretation Service

- BSMHFT has an ECG interpretation service, which is provided by an external provider (presently Broomwell Healthwatch) and the contract is monitored by the Lead Nurse for Physical Health.
- Once the team has decided that an ECG requires further interpretation (after being reviewed by the doctor) , the team will need to complete the reporting request form ([Appendix 5](#)) available on [Electrocardiogram \(ECG\) \(sharepoint.com\)](#)
- The request form (and the ECG trace) should be sent by an encrypted secure @nhs.net email address to the providers own dedicated nhs.net email address.
- The ECG will be interpreted, reported on, and sent back to the trust by email (as per the sender's request) as per guidance in [Appendix 6](#).
- The report should be reviewed, actioned, and stored in the service users **Rio records (in clinical documents) – ** S1 system in the prison healthcare services.

3.10. Monitoring, Evaluation and Audit

- It is each clinical team's responsibility to monitor the training and competence within their clinical teams. A register of competent practitioners will be held by the ECG service and is available on the connect pages [Electrocardiogram \(ECG\) \(sharepoint.com\)](#)
- The responsibility lies with each individual to arrange annual reassessment.
- Reassessment documentation will be compared against baseline assessment but will include latest evidence and guidelines.
- If reassessment demonstrates lapse in competence the individual staff member and their line manager will be informed. This will require further training or actions to continue their competency.
- Staff must not undertake ECG recording unsupervised until the full competency framework has been completed and competency achieved.

3.11. The Trustwide ECG service

The ECG service comes under corporate function of BSMHFT. The service is available at multiple locations across the Trust, which can be accessed through a referral system on Rio. ([Appendix 7](#))

The referrals are booked centrally for community clinics or picked up on a regular weekly rota for inpatient units. The schedule is generally fixed, however there are sometimes changes around available ECG staffing resource. (a rough guide is available in [Appendix 8](#))

Unfortunately, this service does not cover HMP Birmingham. This is due to the logistics of entering the prison with the necessary equipment, all the ECGs are carried out by trained competent staff within the prison healthcare service.

3.12. ECG Service Principles

- The service is for all teams, who have service users currently registered under the care of BSMHFT and can be referred by any professional member of the multidisciplinary team (MDT)
- Referrals are always done via the 'Rio' clinical system and the ECG will be delivered within the service users local clinical hubs for easy access.
- After completing the Rio referral, an urgent referral can be called through to the ECG office on 0121 301 6646, or emailed to bsmhft.ecgservice@nhs.net for an appointment (answer machine is available out of hours which will be actioned on the next working day)
- Before booking an ECG appointment, the process must be clearly explained by the referrer to the service user and supporting literature given so they understand the value of having this procedure.
- All service user's booked for an ECG will be sent an appointment letter and provided with a text reminder alert on booking, and the day prior to the appointment (if they have agreed to the texting service). This appointment will be visible on the service user's diary in Rio.

- Any risk to the ECG service staff must be clearly added to the Rio clinical system. Significant risk should be telephoned or emailed through to the ECG office by the referrer to protect the safety of the ECG staff. (0121 301 6646 or bsmhft.ecgservice@nhs.net)
- The ECG technician will undertake the ECG at the earliest opportunity to suit the service user and clinic schedule.
- The outcome of the appointment will be documented, and trace uploaded onto Rio promptly (but no later than close of play on the day of completion)
After completing the procedure, the service user will be discharged from the ECG service.
Discharge will generate an email to the referrer of the outcome of the appointment and they will be advised to review or forward to the requesting clinician (if this is not the same person). The email will advise them to review the ECG in clinical documentation at the earliest opportunity.
Self- referrals are not accepted directly from service users.

N.B – ECG clinics are a scarce commodity, and every effort needs to be made to minimise the DNA rate.

3.13. ECG team - Emergency requests.

- Symptoms of acute chest pain, shortness of breath and sustained hypotension and chest pain should be dealt with through the emergency services and an ambulance called to transport the service user to A&E for a comprehensive cardiac/heart assessment. (National Institute for Health and Care Excellent (NICE), 2016)
- If the local practitioner requires an ECG urgently, they can request the local doctor or competent practitioner in that area to undertake the procedure. This needs to be reviewed by the requesting practitioner immediately (or sent to our external interpretation service) and appropriate action taken.

3.14. ECG team - Urgent Appointment schedule

- All attempts will be made to see the client within 7 days from referral. There may be a need for the health or support worker to bring the service user to an alternative clinic venue being run where there is a slot available, (which potentially could be in another locality to the service user's residential area.)
- Urgent referrals will be seen in ward areas where the service user is an inpatient.
- If the technicians are unable to attend unexpectedly then the ECG Connect pages has a list of where the ECG machines are kept locally and the database of competent ECG trained staff and their location. [Electrocardiogram \(ECG\) \(sharepoint.com\)](#)

3.15. ECG team - Routine appointment schedule

- All attempts will be made to see the client within 28 days from referral. (Unless the service user highlights the need for a later date or has had to cancel the appointment)
- There may be a need for the mental health team to contact the ECG office if there is a concern that the service user may not attend. This will support collaborative working, reduce the risk of the service user DNAing, ensuring all clinic slots are fully used and allow us to support the service user have this required procedure.

3.16. ECG team - Requests for Home bound service users.

- Due to the additional time needed for a home visit, great consideration is needed before the practitioner requests a home visit.
- All home visits must be telephoned through to the ECG office (0121 301 6646) as well as a Rio referral. The rationale for the home visit and the urgency needs to be communicated.
- The ECG technician must always be accompanied by a member of their team as the links to the clinical system (especially risk) is minimal. This will support any additional information being available.
- Home visits may also be carried out by trained members of the community team who have the competency in the ECG techniques. Local clinical staff must risk assess if they are safe to complete an ECG alone or if there is a need for supporting staff.

3.17. ECG team – Communicating outcome of ECG with the MDT.

- The ECG trace will be uploaded onto Rio in 'clinical documentation' on the same day; however, there is an aim to do this immediately.
- The ECG technician will clearly document the basic outcome of the appointment in the service user's progress notes.
- Should the clinician carrying out the trace have cause for concern they will act upon this concern immediately by: -
 - Contacting the clinical team who requested the ECG for an urgent review.
 - Advised the service user to book to have a routine appointment at the GP (with an enclosing letter and copy of the ECG trace)
 - Send to our external interpretation provider for a second opinion ([Appendix 5](#) and [6](#))
 - Or call an ambulance to take to A&E (if urgent attention is required) (National Institute for Health and Care Excellent (NICE), 2016)

3.18. ECG Team - DNA appointments

- When a service user does not attend, the ECG technician will review Rio to evaluate if there is a reason for non-attendance, and rebook if appropriate.
- Cancellations will be rebooked into the next available clinic or next suitable clinic to the service user needs.

- This will be clearly documented in Rio progress notes and the service users Rio diary.
- Service users will be discharged from caseload; and an email will be generated and sent to the referrer to advise them of this outcome.

3.19. Risk to ECG staff.

- Where there is a concern for the ECG technician safety, a risk assessment will be performed in collaboration with the necessary health care professionals, the current risk assessment will be reviewed on Rio.
- If the service user is considered moderate to high risk, the ECG technician will require a second staff member from the referring clinical team to be present at all times. (This could include ward staff for inpatient units.)
- Service users will always be seen in an environment with a functioning personal alarm or be provided with a locally provided personal alarm on site.

3.20. Out of hours/bank holidays ECG needs

- The ECG service works within office hours only. (09:00 -17:00) If an ECG trace is required outside working hours or on bank holidays, then the ECG can be completed by a doctor or competent member of the local team.
- The Connect pages include a list of where machines are stored and the database of competent ECG trained staff and their location on the web page.
[Electrocardiogram \(ECG\) \(sharepoint.com\)](#)
- Routine ECGs will be completed on the next available routine visit.

4. Responsibilities

This should summarise defined responsibilities relevant to the policy.

Post(s)	Responsibilities	Ref
All clinical staff	All staff involved in the request, taking or the interpretation must be familiar with this policy. All staff are involved in the process of taking an ECG are responsible for their own knowledge and competency	
Service, Clinical and Corporate Directors	Ensure that arrangements are in place to support a safe and accessible ECG service	
Policy Lead	Ensure monitoring processes are in place. Ensure this document is reviewed annually to ensure it is keeping pace with developments	
Executive Director	Ensure that arrangements are in place to support a safe and accessible ECG service	
Nonclinical staff	All staff involved in organising the ECG referral or uploading of the information have appropriate understanding of the process	

5. Development and Consultation process:

Consultation summary		
Date policy issued for consultation	June 2024	
Number of versions produced for consultation	2	
Committees / meetings where policy formally discussed	Date(s)	
ECG team meeting	22 nd May 2024	
Physical Health Committee	4 th June 2024	
PDMG	11 th September 2024	
Where received	Summary of feedback	Actions / Response
4 th June 2024	Limited information related to HMP Birmingham	Agreed and added

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8. Glossary:

12-Lead electrocardiograms (ECG) The recording of the heart's electrical signals by attaching electrodes in 10 standard positions on the limbs and the surface of the chest. This provides a display of the electrical activity of the heart viewed from 12 different directions (NICE 2010 A)

Cardiovascular Disease. Encompasses a range of conditions affecting the heart and blood vessels. High blood pressure, heart disease, atherosclerosis, heart attack, stroke, heart failure: congestive heart failure, irregular heart rhythms.

ECG Interpretation The process to examine the ECG recording to determine the heart rate, rhythm, specific measurements of the complexes and intervals and to establish if there are any abnormalities.

Hypotension- Low blood pressure

QT/QTc interval. The QT interval is a measurement made on an electrocardiogram used to assess some of the electrical properties of the heart. It is calculated as the time from the start of the Q wave to the end of the T wave and approximates to the time taken from when the cardiac ventricles start to contract to when they finish relaxing.

Polarisation this refers to the state of the heart muscle cell when they have no electrical activity and different ion concentration on either side of the cell membrane.

Repolarisation This is the process of restored the normal polarised state of the heart cell after they contract.

9. Audit and assurance:

Element to be monitored	Lead	Tool	Frequency	Reporting Committee
Time from referred to completion	Lead Nurse for Physical health	Rio	Bi-yearly	Physical health committee
Review all the ECG's sent to Broomwell health for quality assurance and complications identified (appendix 6)	Lead Nurse for Physical health	Broomwell data	Bi-yearly	Physical health committee
Competence of trust staff undertaking the ECG procedure	Lead Nurse for Physical health	Competency register	Bi-yearly	Physical health committee
Review the Eclipse date for regular declining service users and outcomes of this eclipse	Lead nurse for physical health	Eclipse	Quarterly	Physical health committee

10. Appendices:

Appendix 1 - Equality Analysis Screening Form	Error! Bookmark not defined.
Appendix 2 - for equipment	Error! Bookmark not defined.
Appendix 3 - Patient and room preparation	Error! Bookmark not defined.
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Appendix 8 – Rough guide to ECG schedule	Error! Bookmark not defined.

Appendix 1 - Equality Analysis Screening Form

A word version of this document can be found on the HR support pages on Connect

<http://connect/corporate/humanresources/managementsupport/Pages/default.aspx>

Title of Policy	ECG – (12 Lead Electrocardiogram) Policy 2024		
Person Completing this policy	Lyndi Wiltshire	Role or title	Lead Nurse for Physical Health
Division	Corporate	Service Area	Physical Health
Date Started	9 th May 2024	Date completed	12 th June 2024
Main purpose and aims of the policy and how it fits in with the wider strategic aims and objectives of the organisation.			
An ECG is the gold standard investigation and is often the first diagnostic test in people at risk of heart disease, starting antipsychotic medication, monitoring QTc intervals or in service users with previously diagnosed heart disease/cardiovascular disease or at risk of a cardiac event.			
Who will benefit from the policy?			
Service users who are having physical health care within the trust (Inpatient and Community); especially when taking certain antipsychotic medication or potentially will require rapid tranquillisation.			
Does the policy affect service users, employees, or the wider community? <i>Add any data you have on the groups affected split by Protected characteristic in the boxes below. Highlight how you have used the data to reduce any noted inequalities going forward</i>			
Mental health diagnosis is a huge health inequality, and the risk of early mortality is up to 20 years younger than the general population. Having access to an ECG will support will reduce this inequality by having vital information related cardiovascular disease.			
Does the policy significantly affect service delivery, business processes or policy? <i>How will these reduce inequality?</i>			
By having clear standards for all areas related to the ECG procedure, we will ensure the physical health risk of our service users will improve the clinical effectiveness and quality of care received.			
Does it involve a significant commitment of resources? <i>How will these reduce inequality?</i>			
The trust will need to invest in ECG machines, IT infrastructure to record on Rio, an interpretation service, and skilled clinicians to take ECGs. This will reduce inequalities but ensuring the right care is delivered at a suitable time for all our service users, reducing the risk of our most vulnerable service users being missed.			

Does the policy relate to an area where there are known inequalities? (e.g. seclusion, accessibility, recruitment & progression)				
The ability to deliver an ECG at the point of need will increase accessibility to service users. Additionally supporting the training of staff could help with recruitment, retention and potentially progression of our clinical staff.				
Impacts on different Personal Protected Characteristics – Helpful Questions:				
<i>Does this policy promote equality of opportunity?</i> <i>Eliminate discrimination?</i> <i>Eliminate harassment?</i> <i>Eliminate victimisation?</i>			<i>Promote good community relations?</i> <i>Promote positive attitudes towards disabled people?</i> <i>Consider more favourable treatment of disabled people?</i> <i>Promote involvement and consultation?</i> <i>Protect and promote human rights?</i>	
Please click in the relevant impact box and include relevant data				
Personal Protected Characteristic	No/Minimum Impact	Negative Impact	Positive Impact	Please list details or evidence of why there might be a positive, negative or no impact on protected characteristics.
Age			x	Availability of ECG at the point of need in the older adult population by skills practitioners able to care for individual needs
Including children and people over 65 Is it easy for someone of any age to find out about your service or access your policy? Are you able to justify the legal or lawful reasons when your service excludes certain age groups				
Disability			x	Availability of an ECG trace in people with any disability by trained professionals by skills practitioners able to care for individual needs
Including those with physical or sensory impairments, those with learning disabilities and those with mental health issues Do you currently monitor who has a disability so that you know how well your service is being used by people with a disability? Are you making reasonable adjustment to meet the needs of the staff, service users, carers, and families?				
Gender	x			
This can include male and female or someone who has completed the gender reassignment process from one sex to another. Do you have flexible working arrangements for either sex? Is it easier for either men or women to access your policy?				
Marriage or Civil Partnerships	x			
People who are in a Civil Partnerships must be treated equally to married couples on a wide range of legal matters. Are the documents and information provided for your service reflecting the appropriate terminology for marriage and civil partnerships?				

Pregnancy or Maternity	x			
<p>This includes women having a baby and women just after they have had a baby. Does your service accommodate the needs of expectant and post-natal mothers both as staff and service users? Can your service treat staff and patients with dignity and respect relation into pregnancy and maternity?</p>				
Race or Ethnicity	x			
<p>Including Gypsy or Roma people, Irish people, those of mixed heritage, asylum seekers and refugees What training does staff have to respond to the cultural needs of different ethnic groups? What arrangements are in place to communicate with people who do not have English as a first language?</p>				
Religion or Belief	x			
<p>Including humanists and non-believers Is there easy access to a prayer or quiet room to your service delivery area? When organising events – Do you take necessary steps to make sure that spiritual requirements are met?</p>				
Sexual Orientation	x			
<p>Including gay men, lesbians, and bisexual people Does your service use visual images that could be people from any background or are the images mainly heterosexual couples? Does staff in your workplace feel comfortable about being 'out' or would office culture make them feel this might not be a good idea?</p>				
Transgender or Gender Reassignment	x			
<p>This will include people who are in the process of or in a care pathway changing from one gender to another. Have you considered the possible needs of transgender staff and service users in the development of your policy or service?</p>				
Human Rights	x			
<p>Affecting someone's right to Life, Dignity and Respect? Caring for other people or protecting them from danger? The detention of an individual inadvertently or placing someone in a humiliating situation or position?</p>				
<p>If a negative or disproportionate impact has been identified in any of the key areas would this difference be illegal / unlawful? I.e. Would it be discriminatory under anti-discrimination legislation. (The Equality Act 2010, Human Rights Act 1998)</p>				
	Yes	No		

What do you consider the level of negative impact to be?	High Impact	Medium Impact	Low Impact	No Impact
				NA
<p>If the impact could be discriminatory in law, please contact the Equality and Diversity Lead immediately to determine the next course of action. If the negative impact is high a Full Equality Analysis will be required.</p>				
<p>If you are unsure how to answer the above questions, or if you have assessed the impact as medium, please seek further guidance from the Equality and Diversity Lead before proceeding.</p>				
<p>If the policy does not have a negative impact or the impact is considered low, reasonable, or justifiable, then please complete the rest of the form below with any required redial actions, and forward to the Equality and Diversity Lead.</p>				
<p>Action Planning:</p>				
<p>How could you minimise or remove any negative impact identified even if this is of low significance?</p>				
<p>No negative impact identified</p>				
<p>How will any impact or planned actions be monitored and reviewed?</p>				
<p></p>				
<p>How will you promote equal opportunity and advance equality by sharing good practice to have a positive impact other people as a result of their personal protected characteristic.</p>				
<p></p>				
<p>Please save and keep one copy and then send a copy with a copy of the policy to the Senior Equality and Diversity Lead at bsmhft.edi.queries@nhs.net. The results will then be published on the Trust's website. Please ensure that any resulting actions are incorporated into Divisional or Service planning and monitored on a regular basis</p>				

Appendix 2 – Equipment list

To be updated with new equipment list for new machines

All Edan ECG parts can be ordered from xx.

Part Number	Description	Disc Price

The following can be ordered from NHS Supply chain.

<http://my.supplychain.nhs.uk/catalogue>

<p>Ambu ECG Electrodes <u>FDK1435</u></p>	
<p>Skintact ECG Electrodes <u>FDK244</u></p>	
<p>Universal ECG Snap Clips <u>FDK129</u></p>	

Appendix 3 - Patient and Room Preparation

Patient experience, privacy, and dignity

A key goal of good practice is to ensure the service user has a positive experience of the procedure. Good communication skills are a key part of enhancing the patient's experience of the investigation.

Level of undress

ECG technician/practitioner will make every effort to respect the cultural sensitivities of the service user to minimise embarrassment. Many people will feel uncomfortable being touched on their upper torso; therefore, the practitioner will be sensitive to this and act in a sympathetic, caring, and compassionate manner.

The service user will be asked to remove clothing above the waist to allow access to the chest for accurate electrode placement.

They must be allowed to undress in a private environment with minimal risk of interruption. This includes providing a cover whilst waiting for the procedure.

Once they are ready, the electrodes will be attached, and the service user they will then be covered with a bed roll/disposable sheet (or their own shirt) to preserve modesty.

Chaperones

Service users will always be given the option to have a chaperone present. The chaperone may be a relative or carer if requested.

Room Preparation

As far as possible the environment should be:

- Private: walled, curtained, or screened
- Quiet
- Accessible for disabled and able-bodied service users
- Safe
- Clean with appropriate hand-cleaning and clinical waste facilities
- Furnished with a height adjustable couch in an easily accessible position.
- All main leads, cables and connectors should be intact with no evidence of fractures, faults, or insulation damage.
- Have an adequate supply of ECG accessories, including electrodes, spare crocodile clips, tissues, and alcohol wipes. Depending on the machine there may be a need for ECG paper.

Infection control

All measures to control the risk of infection transmission must be taken in accordance with trust policy.

Hands will be washed with soap and water or cleansed with alcohol gel before and after any contact with a patient.

For service users requiring high level of infection control precautions, personal protective equipment such as gowns and gloves will be worn.

Appropriate clinical waste disposal facilities should be available including sharps bins.

For Home visits

Since the service user is required to remove their upper clothing, it is important that the area is one which takes into account of the need to respect their modesty and privacy.

The procedure is in an area with enough room to move around.

There should ideally be hand washing facilities or if this is not possible alcohol gel should be available.

The technician has communicated with the community to assess the risk in attending the home to undertake the procedure.

The ECG machine should be transported safely in the boot of a car.

Appendix 4 -The Procedure for Recording a 12-Lead ECG

Preparation of the patient

A calm confident manner is needed by the health professional recording the ECG as the patient may be anxious or concerned.

Explain the procedure to the patient to obtain their consent, if necessary, an interpreter should be booked who can communicate in the required language, including BSL.

Offer the patient a chaperone or escort as the patient's torso will be exposed during the placement of the ECG leads. Ensure that the service users' dignity is maintained at all times. If the service user objects to the gender of the clinician, a suitable alternative must be found.

Maintain the patient's privacy and dignity at all times.

Position the patient in a semi-recumbent position with a pillow. Occasionally you will need to do the ECG whilst the service user is in a chair. You must document this in the patients' notes.

Skin must be clean and dry to reduce the resistance between the patient and the ECG machine. Skin can be cleaned with an alcohol wipe, or washed with mild soap and water, ensuring the skin is completely dry. (This will increase adherence of the electrode to the skin as there must be firm contact between electrode and skin.) Note that if an alcohol wipe is going to be used - the patient must be asked about any sensitivity.

The removal of chest hair may be required by clipping the hair using disposable scissors to ensure adequate contact with the skin. Verbal consent should be obtained from the patient. Hair must not be shaved.

The patient will be advised to remove their watches, electrical devices, and smart phones, as they can contribute to interference on the ECG recording.

Ask the patient if they have any skin reactions or allergies to adhesive tape. Consider using hypoallergenic pre-prepared electrodes as an alternative for those with sensitive skin.

Preparing the ECG machine

Check that the machine is calibrated, and all the necessary equipment is present.

Check the calibration mark is 2 large squares in height (once ECG recorded).

Unless specifically stated by the requesting doctor/nurse, ensure the ECG recording machine speed is set at 25 mm/sec.

Ensure the ECG recording is set at 10 mm/mV.

Ensure the same brand of electrodes is used on individual patients.

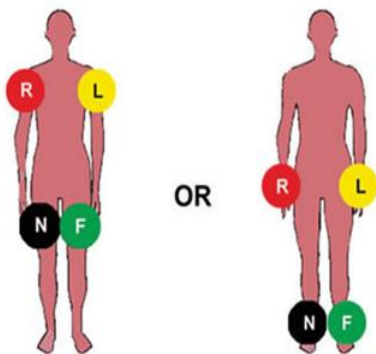
Make sure the electrodes haven't dried out, if they have, open a new packet.

Enter the correct patient details into the machine, Rio number only. If the correct service user does not appear on the screen, add name, DOB, and gender (required for accurate QTc interval)

Placement of Electrodes – Limb Leads

On standard ECG recording machines, the cables from the machine to the patient are labelled as follows:

RA (R)	Right Arm	Colour Red	LA (L)	Left Arm	Colour Yellow
RL (N)	Right Leg	Colour Black	LL (F)	Left Leg	Colour Green

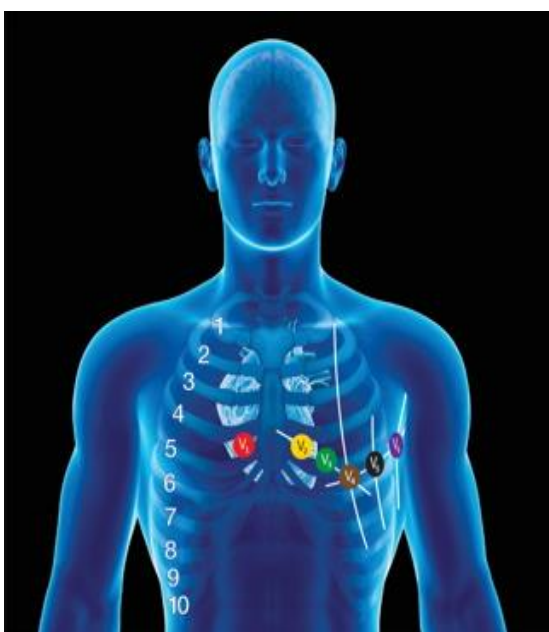


Standard locations for the limb leads should always be symmetrical. Commonly placed on the inner surfaces of the arms and legs slightly proximal to the wrist and ankle. However other areas of the limb are appropriate understanding the location needs to be the same on both sides.

Placement of Chest Leads:

The chest leads are placed across the chest wall as detailed. There are six chest leads which are placed as follows:

V1 (C1)	4 th intercostal space, right sternal border
V2 (C2)	4 th intercostal space, left sternal border
V3 (C3)	Midway between V2 and V4
V4 (C4)	5 th intercostal space, mid-clavicular line
V5 (C5)	Level of V4, left anterior axillary line
V6 (C6)	Level of V4, left mid-axillary line



- V₁ 4th intercostal space to the right of the sternum
- V₂ 4th intercostal space to the left of the sternum
- V₃ Directly between the leads V₂ and V₄
- V₄ 5th intercostal space at midclavicular line
- V₅ Level with V₄ at left anterior axillary line
- V₆ Level with V₅ at midaxillary line
(directly under the midpoint of the armpit)

Recording the ECG

Ensure patient is relaxed and comfortable in order to record a good quality ECG. If patients are not relaxed the recording will show somatic muscle potential as well as cardiac activity.

For the initial ECG recording, the filter button should not be selected. If despite efforts to make the patient relaxed and comfortable there is somatic muscle interference on the ECG then switch on the **filter button and repeat the ECG.

**Note: the filter will reduce the interference, however it can distort the ECG, and it should only be used when absolutely necessary after all attempts have been made to eliminate the interference.

Record the ECG as per manufacturer's instructions.

After the ECG

Check the ECG has successfully been completed and has been uploaded to Rio (or there is a valued print available)

Remove all electrodes carefully (as they can pull the patients skin).

If the ECG has not been labelled electronically, ensure the patient details are written on the ECG.

Explain to the service user, who and when the results will be discussed with them.

Ensure the information relating to the ECG and any conversation had with the service user about the ECG is documented in progress notes of Rio as soon as possible but no more than 6 hours after the event.

The trace will be uploaded onto Rio (in clinical documents) so the referring clinician or medical team can decide upon appropriate action.

The referring clinician can consider sending for interpretation if unable to recognise the rhythm or has any concerns.

Appendix 5 – ECG Interpretation Request Form

Broomwell Health Watch Service ECG Interpretation Request Form

Email address for sending / receiving ECG traces - ecg2.broomwell@nhs.net

Routine – (next Monday)

Overnight – (next day)

Please remember to attach the ECG Trace

****Very Urgent** –

***Please ring through the request on 0161 236 0141 to inform them why you an urgent response is required*

Patient NHS number.		Patients initials	
DOB	BMI	Biological Male or Female <i>(needed to calculate QT interval)</i>	
Presenting symptoms			
Reason we completed an ECG.			
Please enter details of the person that the report will be sent to			
Name			
Email address			
Contact number			
Role			
Team			
Requester (if the details are different from above)			
Name			
Email address			
Role			
Team			

Appendix 6 - Service by Broomwell Healthwatch

The interpretations will be performed by experienced cardiology staff who are UK registered, and who have extensive experience in interpreting ECGs. All of the Broomwell Healthwatch staff will have their ECG skills objectively assessed and all of them have all the ECGs that they have interpreted checked by a second clinician.

Transfer of ECGs to Broomwell

ECGs should be sent to Broomwell by secure email. They should be sent from any nhs.net email address to Broomwell's dedicated nhs.net email address ecg2.broomwell@nhs.net this ensures that transmission is encrypted and secure.

Transfer of interpretation back to the trust

Broomwell will send the report from there dedicated nhs.net address to the nhs.net address specified by the sender so that the email will be encrypted and secure. The format of the report file will be pdf which can easily be integrated into Rio. Each time an ECG is sent to Broomwell the sender should confirm the email address that they wish the interpretation report to be sent back to.

Reporting time

ECGs will be interpreted, reported on, and sent back depending on the request of the referrer. If this is not documented, Broomwell will consider them to being urgent.

Time scale	**Cost per interpretation
Routine (less urgent) interpretation are marked for weekend interpretation will be reported on and sent back by 9am on the next Monday	£17.02
Within 24 hours (overnight)	£20.41
Urgent - can be marked 'for immediate interpretation' will be reported on and send back with an average of 15-20 minutes (but no longer that 75minutes) If the sender wishes the interpretation to be done even quicker, they can call Broomwell and request that and will be given a verbal interpretation whilst on the call and a written report within a few minutes	£24.95

** prices correct April 2024

Availability of Service

The service is available 24 hours a day, 365 days a year. The timeframes will be met at all times 24 hours a day, 365 days a year.

Reviewing the Report

Once a report has been received by the requester, it should be reviewed at the earliest opportunity and any actions followed.

It should then be scanned and uploaded to the service users clinical records (in clinical documentations)

The key performance indicators (KPI) dataset within Broomwell will include.

Quality controls of reading through random sampling of inter rater reliability tests, twice a year with an external control to the organisation of up to 20 traces.

Random sampling of care records of patients schedules for ECG to ascertain turnaround of ECG undertaken to return of the report and trace into the care records.

Contact details.

Telephone number – 0161 236 0141.

Email address for ECG reading – ecg2.broomwell@nhs.net

Email address for general enquiries health@broomwell.com

Postal address – Broomwell Healthwatch, Boulton House (7th Floor) 17-21 Chorlton Street, MANCHESTER, M1 3HY

www.broomwellhealth.com

Appendix 7 – ECG Team referral quick guide

Indicators

Navigation

- Case Record
- Demographic Information
- Referral, Transfer & Discharge
 - Referral Management**
 - Transition & Transfer
 - Request for Care Co-Ordinator
 - Discharge from trust services
 - Waiting List
 - Seven day follow-up exceptions
 - FTB Transition
- Assessments

Open patient in Rio
On front page
Click 'Referral management'

Secure M - Bed Management	25 Mar 2013, 10:00	N	27 Jan 2014
Secure M - ICU	24 Mar 2014, 16:03	N	11 Aug 2014

Current Referrals Discharged Referrals
[Create New Referral](#)

At bottom of page
Click 'Create New Referral'

Referral Initiated Date: 1 December 2016

Service Group: Corporate Services - Nursing /AHP

Service: Electrocardiogram - ECG

Care Setting: Multi-Setting

Referral Source: Internal to BSMHFT

Referrer: Please Select

Referral Reason: Please Select

Other Reason for Referral: Please Select

Team Referred To: Electrocardiogram - ECG

HCP Referred To: Please Select

Referral Urgency: Routine

Administrative Category: NHS Patient

Referral Comment: Service user has history of cardiac health problems

Contract Identifier: Dr A Test

Date & time referral received: 1 December 2016 13:10

Referral Accepted for Assessment Date:

Associated Documents

Date	Type	Title
-No Documents Associated-		

Referral Initial Date **Date**
 Service Group **Corporate Services Nursing/ANP**
 Service **Choose ECG service.**
 Care setting **multi-setting.**
 Referral source **Internal to BSMHFT**
 Referrer **Your service/team**
 Referral Reason **Complete**
 Team Referred **Choose service.**
 HCP referred to **Leave blank.**

Referral Urgency **Routine or Urgent**
 Administrative Category **NHS**

Comment **Brief instructions.**
 Date and time referral received - **Click date.**

Referral Accepted for assessment date **leave blank.**

'Click save referral'.

[View Referrals](#)

Appendix 8 – Rough guide to ECG team schedule

MON	TUES	WED	THURS	FRI
Week 1				
Orsborn House 09:00 -16:00 Small Heath HC 09:00-13:00 All inpatient in Newbridge, Tamarind and MSH	Zinnia 09:15 -13:00 Maple Leaf 09:15-12:00 Lyndon 13:30-16:00 All inpatients at Zinnia and Grove Ave.	Longbridge 13:30—16:00 Barberry OPD 14:00-16:30 All inpatient units in the North inpatient wards, and Barberry site	Northcroft 09:15-16:00 All inpatient unit on the Ardenleigh, Juniper and Oleaster site	Warstock 09:15—11:45 Maple Leaf 09:15 – 13:00 Ad hoc session to cater for surplus ECGs referrals.
Week 2				
Orsborn House 09:00 -13:00 Small Heath HC 09:00-13:00 All inpatient in Newbridge, Tamarind and MSH	Zinnia 09:15 -12:30 Maple Leaf 09:15-12:00 Lyndon 13:30-16:00 All inpatients at Zinnia, Grove Ave, and Dan Mooney/David Bromley	Longbridge 13:30—16:00 Barberry OPD 14:00-16:30 All inpatient units in the North inpatient wards, and Barberry site	Northcroft 09:15-16:00 All inpatient unit on the Ardenleigh and Oleaster site	Maple Leaf 09:15 – 13:00 Ad hoc session to cater for surplus ECGs referrals
Week 3				
Orsborn House 09:00 -13:00 Small Heath HC 09:00-13:00 All inpatient in Newbridge, Tamarind and MSH	Zinnia 09:15 -12:30 Maple Leaf 09:15-12:00 Lyndon 13:30-16:00 All inpatients at Zinnia and Grove Ave.	Longbridge 13:30—16:00 Barberry OPD 14:00-16:30 All inpatient units in the North inpatient wards, and Barberry site	Northcroft 09:15-16:00 All inpatient unit on the Ardenleigh, Juniper and Oleaster site	Maple Leaf 09:15 – 13:00 Ad hoc session to ensure urgent ECGs are completed
Week 4				
Orsborn House 09:00 -13:00 Small Heath HC 09:00-13:00 All inpatient in Newbridge, Tamarind and MSH	Zinnia 09:15 -12:30 Maple Leaf 09:15-12:00 Lyndon 13:30-16:00 All inpatients at Zinnia, Grove Ave, and Dan Mooney/David Bromley	Longbridge 13:30—16:00 Barberry OPD 14:00-16:30 All inpatient units in the North inpatient wards, and Barberry site	Northcroft 09:15-16:00 All inpatient unit on the Ardenleigh and Oleaster site	Maple Leaf 09:15 – 13:00 Ad hoc session to cater for surplus ECGs referrals

Blue – outpatient clinics

Black – inpatient units