PROTOCOL FOR ELECTROCONVULSIVE THERAPY (ECT) TREATMENT CENTRE WITHIN NORTHAMPTONSHIRE HEALTHCARE TRUST
Table of Contents

Why we need this Protocol ................................................................. 7
Any required definitions/explanations .................................................. 8

Junior Doctor Training ........................................................................... 13
Anaesthetist ......................................................................................... 14
Nursing ................................................................................................. 14
Senior ECT Nurses ............................................................................... 14
Nurse Training ....................................................................................... 15
General Staffing Issues ......................................................................... 16
General Staff Training .......................................................................... 16
Policy detail .......................................................................................... 17
Assessment and Preparation of Patients ............................................... 17
Completing the ECT pack ...................................................................... 17
ECT and patients with an ASA score of 3 and above .............................. 19
Providing appropriate patient information ........................................... 21
Patient information .............................................................................. 21
Written information ............................................................................. 21
Obtaining consent, MHA/MCA issues ................................................... 21
The patient who is capable of giving valid consent to ECT ...................... 21
The process of consent ......................................................................... 21
Who may obtain consent? ................................................................... 21
Consent forms ...................................................................................... 22
The patient who has capacity and is unwilling to consent to ECT .......... 22
ECT for 16–18 years: informal and detained ......................................... 22
Drug treatment during and after a course of ECT .................................. 23
Concurrent medication during and after a course of ECT ..................... 24
Antipsychotics ...................................................................................... 24
Clozapine and General Anaesthesia ..................................................... 24

This document is uncontrolled once printed. Please refer to the Trust intranet for the current version.
Mood Stabilizers ........................................................................................................... 24
Anti-epileptics ............................................................................................................... 24
Anticonvulsants for Mood Disorders ........................................................................... 25
Lithium .......................................................................................................................... 25
Antidepressants ............................................................................................................ 25
Monoamine Oxidase Inhibitors (MAOI’s) ................................................................. 25
Acetylcholinesterase Inhibitors .................................................................................... 26
Benzodiazepines .......................................................................................................... 26
Hypnotics ....................................................................................................................... 26
Hypoglycaemics ............................................................................................................ 26
Management of diabetic patients taking oral hypoglycaemic agents: ....................... 26
Management of diabetic patients on insulin: ............................................................. 27
Cardiovascular Conditions .......................................................................................... 28
Hypertension ................................................................................................................ 28
Pacemakers and implantable defibrillators ................................................................. 28
Digoxin ........................................................................................................................... 28
Anticoagulants .............................................................................................................. 29
Steroids / Asthma medications ..................................................................................... 29
Gastrointestinal medications ....................................................................................... 29
Travel medication .......................................................................................................... 29
Pregnancy ...................................................................................................................... 29
Over the counter, complimentary or alternative medicines ........................................ 29
Medication on the morning of ECT ............................................................................ 30
Dantrolene .................................................................................................................... 30
Inpatients/Day Patients ............................................................................................... 31
Inpatients ....................................................................................................................... 31
Fasting prior to ECT .................................................................................................... 32
On the day of treatment ............................................................................................... 32
Identity bracelets ......................................................................................................... 33
Patient escorts .............................................................................................................. 33
Day patients .................................................................................................................. 34
Day patient discharge ................................................................................................. 35
Information needs of the Supervising Adult ............................................................... 36
ECT and patients with an ASA score of 3 or above ................................................................. 36
Procedure for escorting a patient from a remote site ............................................................... 36
MHA Considerations .................................................................................................................. 38
Patients who are deemed unfit to travel by the RC/Aestheticist or Lead ECT Consultant ........ 38
Anaesthetic Practice .................................................................................................................. 38
Patient requirements ................................................................................................................ 39
Before ECT .................................................................................................................................. 39
During ECT .................................................................................................................................. 40
After ECT .................................................................................................................................... 42
Other provisions ........................................................................................................................ 42
Treatment Procedure ................................................................................................................. 42
The Administration of ECT ......................................................................................................... 42
Determining the Seizure Threshold .............................................................................................. 43
What if the seizures become too short during the course of ECT? ............................................ 44
Electroencephalogram (EEG) .................................................................................................... 45
EEG Placement ............................................................................................................................ 47
Determination of end point of the EEG seizure activity ............................................................ 48
The machine settings for Thymatron System IV ....................................................................... 48
Electrode Placement and Application ....................................................................................... 48
Communication with ECT nurse ............................................................................................... 49
Monitoring/Timing of a Seizure ................................................................................................. 51
Recovery ...................................................................................................................................... 52
Discharge Criteria ....................................................................................................................... 53
Record Keeping .......................................................................................................................... 54
Confidentiality of Patient Information ...................................................................................... 55
Stimulus Dosing ........................................................................................................................ 55
Stimulus dosing – Initial dose titration ..................................................................................... 55
ECT Treatment Notes ................................................................................................................. 62
Bilateral ECT .............................................................................................................................. 62
Unilateral ECT ........................................................................................................................... 62
All patients .................................................................................................................................. 62
Laterality of Treatment .............................................................................................................. 63
Frequency ..................................................................................................................................... 63

This document is uncontrolled once printed. Please refer to the Trust intranet for the current version.
Re-stimulation protocol ................................................................................................................. 63
Missed seizure ............................................................................................................................... 63
When a seizure becomes too short during the ECT course .......................................................... 64
Switching from bilateral to unilateral ECT ..................................................................................... 65
Management of marked seizure shortening ................................................................................. 65
Management of Prolonged / Tardive Seizures and High Seizure Threshold ................................. 65
  The management of a prolonged seizure .................................................................................... 66
  Possible causes to be considered ............................................................................................... 66
  The management of a tardive seizure ....................................................................................... 67
  Individuals with very high seizure thresholds ......................................................................... 67
  Continuation/Maintenance ECT ............................................................................................... 67
  Responsibilities (of the referring team) ................................................................................... 69
Criteria for continuation/maintenance ECT .................................................................................. 70
Ongoing Reviews during course of Continuation/Maintenance ECT ........................................... 71
Monitoring and follow up .............................................................................................................. 72
  Monitoring of treatment response to ECT between treatment sessions ............................... 72
  Follow-up arrangements ............................................................................................................ 74
  Overview - Decision to discontinue ECT ................................................................................ 74
Recommendations (from ECT Handbook, 3rd Ed, 2013) ............................................................ 75
Bi-lateral ECT ............................................................................................................................... 75
Unilateral ECT ............................................................................................................................. 75
Patients medication during and after treatment ......................................................................... 75
During course of ECT .................................................................................................................. 75
After course of ECT ...................................................................................................................... 76
Special Precautions / Populations ............................................................................................... 76
  ECT and the Elderly .................................................................................................................. 77
  Recommendations .................................................................................................................. 77
Special provision for the treatment of young people under the age of 18 ................................. 78
Management of Medical Emergencies ....................................................................................... 79
Supplementary Operational Information ...................................................................................... 80
Anti – Discriminatory Practice and Culturally Sensitive Care .................................................... 80
Philosophy ..................................................................................................................................... 80
Principles of Care ........................................................................................................................ 81

This document is uncontrolled once printed. Please refer to the Trust intranet for the current version.
**Why we need this Protocol**

The purpose of this protocol is to provide clear guidelines and structure to facilitate and provide excellent service provision based on current evidence for Electro Convulsive Therapy (ECT). However, on-going research and new developments within ECT may necessitate amendment of this document.

The Treatment Centre at Berrywood Hospital, Northampton provides a countywide ECT service. The service covers the population of Northamptonshire and is accessible to all referred patients. Provision is also made through a Service Level Agreement (SLA) to provide a day patient service to St Andrews Healthcare, Northampton and Milton Keynes CHS.

The ECT clinic is available twice a week on a Tuesday and Friday morning from 08:00am. There is no provision for ECT on Bank Holidays except in an emergency. There is capacity to treat a maximum of 10 patients per session providing all patients are attending Berrywood Treatment Centre. Should a patient require treating at Northampton General Hospital the maximum patients to be treated at Berrywood will be no more than 8 in total. Those requiring ECT will be prioritised as this is an emergency treatment.

This protocol has been developed by the core ECT team to standardise ECT practice across Northamptonshire. It draws upon existing protocols and takes account of *The ECT Handbook* (RCPsych, 3rd Ed, 2013), National Institute for Clinical Excellence (NICE) Technical Appraisal (2003), NICE (2010) update and ECTAS Standards (2019).

The ECT clinic at Berrywood Hospital Northampton uses the Thymatron System IV ECT machine and this protocol refers exclusively to this machine.

**Contact details for the department:**

**Treatment Centre**

This document is uncontrolled once printed. Please refer to the Trust intranet for the current version.
Berrywood Hospital

Berrywood Drive

Northampton

T: 01604 685590/91/92

Ext. 5590/91

Or via Berrywood Reception on 01604 682682

TreatmentCentre.Berrywood@nhft.nhs.uk

Any required definitions/explanations

% Percentage

µg Micrograms

ABG’s Arterial Blood Gases

ACE Angiotensin-converting enzyme

ACE-III Addenbrookes Cognitive Examination – Version 3

ALS Advanced Life Support

AMI Autobiographical Memory Interview

ANC Absolute Neutrophil Count

APA American Psychiatric Association

ARBs Angiotensin-receptor blockers

ASA American Society of Anaesthesiologists

B/L Bilateral

This document is uncontrolled once printed. Please refer to the Trust intranet for the current version.
<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Full Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>BG</td>
<td>Blood Glucose</td>
</tr>
<tr>
<td>BI</td>
<td>Best Interests</td>
</tr>
<tr>
<td>BLS</td>
<td>Basic Life Support</td>
</tr>
<tr>
<td>BMI</td>
<td>Body Mass Index</td>
</tr>
<tr>
<td>BP</td>
<td>Blood Pressure</td>
</tr>
<tr>
<td>CALS</td>
<td>Community Access to Language Service</td>
</tr>
<tr>
<td>CGI</td>
<td>Clinical Global Impression</td>
</tr>
<tr>
<td>CK</td>
<td>Creatine kinase</td>
</tr>
<tr>
<td>CLP</td>
<td>Clinical Local Protocol</td>
</tr>
<tr>
<td>CMHT</td>
<td>Community Mental Health Team</td>
</tr>
<tr>
<td>CNS</td>
<td>Central Nervous System</td>
</tr>
<tr>
<td>CO₂</td>
<td>Carbon Dioxide</td>
</tr>
<tr>
<td>CoP</td>
<td>Court of Protection</td>
</tr>
<tr>
<td>COPD</td>
<td>Chronic Obstructive Pulmonary Disease</td>
</tr>
<tr>
<td>CPA</td>
<td>Care Programme Approach</td>
</tr>
<tr>
<td>CPD</td>
<td>Continuing Professional Development</td>
</tr>
<tr>
<td>CPK</td>
<td>Creatine phosphokinase</td>
</tr>
<tr>
<td>CPMS</td>
<td>Clozaril Patient Monitoring Service</td>
</tr>
<tr>
<td>CQC</td>
<td>Care Quality Commission</td>
</tr>
<tr>
<td>CRHTT</td>
<td>Crisis Resolution Home Treatment Team</td>
</tr>
<tr>
<td>CVA</td>
<td>Cerebrovascular Accident</td>
</tr>
<tr>
<td>CVS</td>
<td>Cerebrovascular Stroke</td>
</tr>
</tbody>
</table>

This document is uncontrolled once printed. Please refer to the Trust intranet for the current version.
<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Full Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>IMCA</td>
<td>Independent Mental Capacity Advocate</td>
</tr>
<tr>
<td>INR</td>
<td>International Normalised Ratio</td>
</tr>
<tr>
<td>IV</td>
<td>Intravenous</td>
</tr>
<tr>
<td>K+</td>
<td>Potassium</td>
</tr>
<tr>
<td>kg</td>
<td>Kilogram</td>
</tr>
<tr>
<td>LFT</td>
<td>Liver Function Test</td>
</tr>
<tr>
<td>Li</td>
<td>Lithium</td>
</tr>
<tr>
<td>MADRS</td>
<td>Montgomery-Åsberg Depression Rating Scale</td>
</tr>
<tr>
<td>MAOI</td>
<td>Monoamine Oxidase Inhibitor</td>
</tr>
<tr>
<td>mC</td>
<td>Millicoulombs</td>
</tr>
<tr>
<td>MCA</td>
<td>Mental Capacity Act</td>
</tr>
<tr>
<td>MCAª</td>
<td>Mental Capacity Assessment</td>
</tr>
<tr>
<td>MDT</td>
<td>Multidisciplinary Team</td>
</tr>
<tr>
<td>mg</td>
<td>Milligrams</td>
</tr>
<tr>
<td>MHA</td>
<td>Mental Health Act</td>
</tr>
<tr>
<td>MHT</td>
<td>Mental Health Team</td>
</tr>
<tr>
<td>ml</td>
<td>Millilitres</td>
</tr>
<tr>
<td>MK</td>
<td>Milton Keynes</td>
</tr>
<tr>
<td>MOCA</td>
<td>Montreal Cognitive Assessment</td>
</tr>
<tr>
<td>NALNECT</td>
<td>National Association of Lead Nurses in ECT</td>
</tr>
<tr>
<td>NGH</td>
<td>Northampton General Hospital</td>
</tr>
<tr>
<td>NHFT</td>
<td>Northampton Healthcare Foundation Trust</td>
</tr>
</tbody>
</table>
NICE National Institute for Health and Care Excellence
NMS Neuroleptic malignant syndrome
NSAIDs Non-steroidal anti-inflammatory drugs
O² Oxygen
ODP Operating Department Practitioner
OTC Over The Counter
PALS Patient Advice and Liaison Service
PCO² Partial Pressure of Carbon Dioxide
PO² Partial Pressure of Oxygen

QT interval is a measure of the time between the start of the Q wave and the end of the T wave

QT interval is a measure of the time between the start of the Q wave and the end of the T wave corrected

RC Responsible Clinician
RCoA Royal College of Anaesthetists
RCPsych Royal College of Psychiatrists
SAH St Andrew’s Hospital
SIG Special Interest Group
SLA Service Level Agreement
SmPC Summary of Product Guidelines

This document is uncontrolled once printed. Please refer to the Trust intranet for the current version.
The ST segment on the ECG indicates the amount of time from the end of the contraction of the ventricles to the beginning of the T wave.

The ST segment on the ECG indicates the amount of time from the end of the contraction of the ventricles to the beginning of the T wave.

**Key duties**

**Junior Doctor Training**

Junior doctors receive induction training prior to participating in the rota; this includes a full session devoted to ECT teaching each 6 months, as part of the induction for all Psychiatric trainees.

The ECT teaching includes:

This document is uncontrolled once printed. Please refer to the Trust intranet for the current version.
• An introduction to the theoretical basis of effective treatment with ECT.
• An introduction to the local ECT protocol.
• Signposting to the Virtual Learning Environment (VLE) site.
• A visit to the clinic and practical demonstration of ECT administration.

On commencement of attendance at the ECT clinic individual instruction on the practical aspects of ECT administration is given by the Consultant Psychiatrist.

An opportunity is given to observe the administration of ECT for at least 3 sessions prior to unsupervised administration.

It is the responsibility Lead ECT Consultant to ensure junior doctors in training meet the standards required outlined in the RCPsych ECT competencies for doctors (RCPsych, 2017).

Anaesthetist

An Associate Specialist Anaesthetist provides anaesthesia on a regular basis. Consultant cover is available from a named Consultant Anaesthetist, who has allocated sessional time devoted to direct clinical care in the provision of anaesthesia and ECT.

Anaesthetists providing anaesthesia for ECT are expected to maintain up to date knowledge as evidenced by an Annual Appraisal.

Royal College of Anaesthetists’ (RCoA) (2017) guidelines on supervision of those working in remote sites is followed, including a clear pathway to gain advice from a readily contactable Consultant Anaesthetist.

Nursing

There is a lead ECT nurse and deputy, who have appropriate ECT and clinical experience. This ECT nurse takes overall responsibility for the management of the clinic and care of the patients.

Senior ECT Nurses

The Lead ECT Consultant supports and supervises the Senior ECT Nurses within the department for nurse administered ECT.

The Lead ECT Consultant ensures the Senior Nurses are assessed so to demonstrate competencies as outlined by the Royal College of Psychiatrists competencies for junior doctors. The Senior Nurses will...
have also completed the ECTAS nurse competencies and local training available on the VLE site. These competencies are reassessed yearly.

Senior nurses must have 3 years ECT experience within an ECT setting which is ECTAS approved with excellence. Additionally, senior ECT nurses will have completed and updated ECT nursing course and regular attendance to ECT training days (3 yearly Royal College training days). In this role the senior nurses will have an up to date appraisal and participate in regular ‘medical’ supervision both clinical and managerial.

The department consultant must have been in post at least 6 months and been assessed as competent to be Lead ECT Consultant using the Royal College of Psychiatrists competency document. For all ECT clinics specialist medical advice should always be available.

Nurses must always be aware of the limits of their ability and role boundaries, acknowledge their professional limitations and make accountable decisions about their ability to practise in a safe and effective manner. Nurses are accountable for the care they give as well as the decisions they make (Nmc.org.uk, 2019)

Other duties include:

- Ensuring that the clinic is properly prepared, organised and maintained.
- Ensuring that the machine functioning and maintenance is checked and recorded at least every year or according to machine guidance.
- Ensuring that the equipment in the clinic is well maintained.
- Ordering and stocking drugs.
- Ordering and stocking disposable equipment.
- Budgetary management.

Before each clinic session the ECT nurse has overall responsibility for carrying out the following checks:

- Ensuring that emergency resuscitation equipment is tested and checked.
- Ensuring that the emergency drugs tray is checked for out of date drugs and missing items.
- Ensuring that the ECT electrodes are checked visually.
- Ensuring that the output and electrical safety of the ECT machine is checked and recorded.
- The delivery dose is also checked and recorded at each application of ECT.

**Nurse Training**

All clinic staff receive appropriate induction and mandatory training.

There is an expectation that staff will continue with CPD activity.

This document is uncontrolled once printed. Please refer to the Trust intranet for the current version.
ECT nurses must undergo the in-house ECT Training programme as part of induction to the unit.

Training for ECT qualified staff also includes attendance for Immediate Life Support (ILS) and Anaesthetic and recovery training, which includes practical experience at the local general hospital (recovery staff).

Uptake of appropriate post graduate courses relevant to ECT is encouraged.

Uptake of the Three Day Training Course for Nurses (RCPsych, NALNECT) is also encouraged.

Attendance at the RCPsych team day is mandatory at least every three years, at least one member of the team must attend each consecutive year.

Membership of the local Special Interest Group (SIG).

**General Staffing Issues**

There is a minimum number of staff in the ECT clinic to safely meet the needs of the patients at all times. When the clinic is treating more than one patient in a session the following minimal staff requirements apply:

- At least one trained nurse in the treatment room
- One trained nurse competent in MHA and MCA to check clinical notes.
- At least one trained nurse and one HCA in the recovery area.
- At least one experienced anaesthetist present during treatment and recovery.
- At least one dedicated trained ODP present during treatment and recovery.
- Lead ECT Consultant / or Deputy available.
- Junior doctor in training (Psychiatry).
- One person competent in cardiopulmonary resuscitation for every unconscious patient.
- The number of staff in the recovery area exceeds the number of unconscious patients by one.
- At least one Advanced Life Support (ALS) provider present during the treatment session.
- There is back-up staff easily available to assist in an emergency situation via Berrywood Alarm System or (9) 999 Emergency Services.

**General Staff Training**

Other staff involved in the administration of ECT have appropriate induction and on-going training including dealing with the following areas:

This document is uncontrolled once printed. Please refer to the Trust intranet for the current version.
• Basic life support techniques – mandatory for all Trust employees.
• Awareness of how to access Trust Policies and procedures.

Policy detail

Assessment and Preparation of Patients

Completing the ECT pack

To refer a patient for routine or emergency ECT, ring the Treatment centre 01604 685590/91/92 or contact the ECT nurse via Berrywood reception 01604 682682.

The ECT nurses will provide a current ECT pack and all current information for the team and patients. The ECT nursing team are available for advice and guidance throughout.

If it is identified that a patient has specific communication needs then the referring team will need to consider the options to facilitate the assessment and preparation for ECT. This maybe in the format of an interpreter, signer or alternative as required.

Prior to attendance it is a requirement that the referring team formally assess the patient’s mental capacity regarding ECT.

The medical history should be complete and highlight issues which may have an impact on anaesthesia e.g. Ischaemic heart disease, hypertension, chronic obstructive airway disease, cerebrovascular disease, diabetes, hiatus hernia/GORD, liver disease, osteoporosis, adverse reactions to previous anaesthetics or a family history of reaction to anaesthetics.

A physical examination should be documented by the referring team within 7 days prior to commencing treatment, reviewed if there are pre-treatment changes in the patient’s physical health state.

Physical examination should report any evidence of cardiac failure, severe valvular heart disease, poorly controlled hypertension, significant infection, poor dentition, obesity, marked cachexia or factors that might prejudice airway management such as arthritis of the neck or jaw or poor mouth opening. The patient’s vital signs, height and weight should be recorded.

This document is uncontrolled once printed. Please refer to the Trust intranet for the current version.
A full drug history including allergies and adverse reactions is essential. Early advice should be sought for patients taking diabetic medication, long term or high dose steroids, anticholinesterase medication or monoamine oxidase inhibitors (MAOI’s).

The following guidance outlines the required information the referring team will need to complete in preparing the patient for ECT:

Patient’s ethnicity

Mental Health Act Status at the time of referral

Reason for referral/proposed treatment plan

Brief psychiatric history

A detailed medical history, including current medication, drug allergies/sensitivities and noted drug problems

A physical examination which includes cardiovascular, respiratory and neurological systems. Height and weight of the patient should also be included.

A venous thromboembolism risk assessment (VTE) should be available for review.

Prescriptions can be documented in the ECT ward pack or electronically. Electronic prescriptions can be documented on SystmOne by the RC and this must detail specific dates when ECT is to be administered by the treating team. For SAH and MK patients a clinic review letter by the RC can be emailed or posted to the department, detailing specific dates of when treatment is to be administered. In all cases only 2xECT treatments can be prescribed at any one time.

Assessments of mood disorder and cognitive functioning using standardised rating scales

An assessment of the existing medication regime prior to the course of treatment and a consistent prescription regime documented to be followed on treatment days

Dental status should be documented with particular reference to poor dentition, loose or damaged teeth, dental implants, crowns, caps and dentures. To assist in completing information on dental status reference can be made to the SystmOne dental assessment. This may be undertaken by the Anaesthetist or dentist.

Contraindications to ECT (e.g. cochlear implant) should be discussed with the ECT team prior to commencing treatment

The patient will then be reviewed and assessed by the ECT Anaesthetist. Anaesthetic assessments normally occur on a Tuesday and Friday mornings and the anaesthetist will record the following;

ASA grade including any variations

This document is uncontrolled once printed. Please refer to the Trust intranet for the current version.
ECT and patients with an ASA score of 3 and above

Provision is available for high-risk patients to be given ECT within the main Theatre Department at Northampton General Hospital (NGH). Following the advice of the Anaesthetist, some patients with an ASA score of 3 may be treated at Berrywood Hospital.

Referring doctor, anaesthetist and nursing staff undertake and follow up appropriate physical investigations including:

Full blood count (FBC).

Serum urea and electrolytes (U&E’s)

Lithium levels (Li) to be done weekly whilst receiving ECT if appropriate

Liver function tests (LFT): for patients with cachexia, a history of liver disease or recent overdose

International normalised ratio (INR): for patients for patients taking anticoagulants as indicated

Glycated haemoglobin (HbA1c): for patients with diabetes

Sickle-cell test should be considered for all African, Caribbean, Middle Eastern, Asian and Eastern Mediterranean patients

Hepatitis B status for patients known to abuse drugs.

Lung function tests: only after discussion with the anaesthetist where indicated

Pregnancy test for females of child bearing age who cannot rule out pregnancy

Electrocardiograph (ECG) for all patients

Chest x-ray (CXR) only after discussion with the anaesthetist e.g. with new onset or recent exacerbation of cardiopulmonary symptoms, chest pain, cough, shortness of breath

Diabetic patients’ blood glucose monitoring charts should be available for review

There may be a need to discuss an individual patient with the anaesthetist before treatment as a result of abnormal investigations or because of the ASA status

Non-availability of any of these tests is not a reason for cancellation of treatment unless there is a clear indication for the test to be done; however the ultimate decision is the responsibility of the Anaesthetist.

For patients on anticoagulants/anticholinesterases/MAOIs please refer to Section 5.

This document is uncontrolled once printed. Please refer to the Trust intranet for the current version.
Fitness for ECT/general anaesthesia must be documented by the referring team. Patients whose condition or results give cause for concern should be referred promptly for anaesthetic assessment. This will facilitate any further investigation or referral required and minimise the risk of last minute cancellations.

There are very few absolute contra-indications to ECT but some serious medical conditions require detailed evaluation and discussion of the balance between the risks and benefits e.g.

Recent myocardial infarction
Recent cerebrovascular events
Raised intracranial pressure/untreated cerebral aneurysm
Unstable major fracture/cervical spinal injury
Phaeochromocytoma
Uncontrolled cardiac failure or severe valvular disease
Deep venous thrombosis

It may be possible to reduce risks of ECT with stabilisation and optimisation of the condition and expert help should be sought early for an opinion regarding risks and benefits to the patient of ECT treatment proceeding or alternative treatment options.

The presence of a cochlear or other brain implant may make ECT impossible; in these instances, discussion with experts familiar with the specific implant is essential. Patients with implanted pacemakers can receive ECT (MacPherson et al, 2006), although implantable cardioverter defibrillators should have defibrillation and anti-tachycardia functions deactivated prior to ECT and reactivated immediately after. ECT in these circumstances will usually be provided at NGH.

ECT is relatively safe in pregnancy (APA, 2001). In the second trimester, consideration must be given to the risks of aorto-caval compression and oesophageal reflux that may require lateral tilt while supine. Treatment should be planned in consultation with the patient’s obstetrician, and consideration given as to whether the presence of a midwife is required.

In cases that are assessed as high anaesthetic risk (ASA 3 or above) consideration should be given to transferring the patient to NGH where there is greater availability of emergency equipment and support.

Record in SystmOne

All prospective ECT patients must receive a formal documented assessment to be completed using the SystmOne ECT template

This document is uncontrolled once printed. Please refer to the Trust intranet for the current version.
Providing appropriate patient information

Patient information

Patients are provided with appropriate information both verbally and in written formats. Alternative formats are available as required (i.e. an interpreter, signer, visual, pictorial or alternative as required which those with other disabilities can use). ECT information leaflets are available for download from the NHFT intranet or hard copies are available directly from the ECT Department.

Written information

An NHFT ‘Introduction to ECT’ booklet (2015) is given to all patients. In addition, a further outpatient information booklet is provided as appropriate. All information sheets have been developed with service user consultation.

If a person has difficulty communicating in English, the preferred language should be documented on the referral card and SystmOne. Information is then provided through an interpreter.

Obtaining consent, MHA/MCA issues

ECT has a particular status, both within psychiatry and the law, that makes specific discussion of issues with regard to consent necessary. It is therefore essential to obtain appropriate consent.

The patient who is capable of giving valid consent to ECT

The process of consent

Who may obtain consent?

The referring consultant first assesses the patient to determine capacity to consent. The confirmation of continued consent should be verbally checked and documented before each treatment.
Consent forms

The pre-ECT checklist contains a section specifying whether the patient continues to give consent before each treatment and must be signed by the ECT nurse and patient to confirm consent.

See pathways to consent Appendix 1 If unsure of process contact MHA/MCA department

The patient who has capacity and is unwilling to consent to ECT

In all cases where a patient has capacity and is unwilling to consent, ECT cannot be given and alternative forms of treatment should be considered.

ECT for 16–18 years: informal and detained

In the case of 16-18 year old patients a Form T5, Child and Adolescent Consultant review and a SOAD should be consulted regardless of the patient’s capacity to consent.


The NICE (2003, p.5) Technology Appraisal of ECT recommends that ECT only be used, ‘To achieve rapid and short term improvement of severe symptoms after an adequate trial of other treatment options has proven ineffective and/or when the condition is considered to be life threatening in individuals with:

Severe depressive illness
Catatonia
A prolonged severe manic episode
This Technology Appraisal was last reviewed in May 2010. The recommendations on ECT on catatonia and mania remain unchanged, the guidance on ECT in depression has been updated by the clinical guideline CG90 (NICE 2018), which states that, ‘The risks associated with ECT may be greater in older people; exercise particular caution when considering ECT treatment in this group’ (NICE, 2009, p.41). This is in the context of evidence that older people have been major users of ECT services in the past (Sackheim, 2009).

If a decision is reached by the treating team to administer ECT to a patient outside of NICE Technical Appraisal, the following procedure should be followed:

Full explanation to patient and/or family/carers as to what NICE is and what it advocates in respect of ECT

Take the patient’s views into consideration especially with regard to previous experience of ECT

Clearly explain and document why the decision has been reached. This should include which other treatment options have been considered

Document clearly on SystmOne that the indication for treatment is outside NICE Guidance, that the patient has capacity and is willing have ECT treatment

On the ECT referral form, highlight the fact that it is outside of NICE Technical Appraisal

The ECT Consultant is made aware of in advance of this need and has the facility to discuss the circumstances with the referring Psychiatrist

In some circumstances, particularly when there is a potential difference of opinion, it is advisable to seek a second opinion from a consultant familiar with ECT or the Lead ECT Consultant.

For maintenance patients the Quality Indicator 4, Maintenance ECT Treatment NHFT form must be completed for every 12 treatments or within 6 months, whichever is shorter. The NICE CG90 has removed the former advice against continuation and maintenance ECT and has adopted a neutral position (The ECT Handbook, 3rd Ed, 2013, p.197).

Drug treatment during and after a course of ECT

Most patients will be taking medication during a course of ECT which may alter the length of seizure threshold (ST). Consideration and recommendations on the management of the patient with pre-existing medical conditions (i.e. diabetes, hypertension and others) is highlighted in this section in order to minimise risk to the patient undergoing a course of ECT.

Patients must be individually assessed prior and during a course of ECT regarding medication, its management and the combination of ECT and medication regimes by the referring and ECT team.

This document is uncontrolled once printed. Please refer to the Trust intranet for the current version.
**Concurrent medication during and after a course of ECT**

Careful consideration should be given to the appropriateness of prescribing potentially cardio-toxic antidepressant or antipsychotic drugs during a course of ECT. Medication will be reviewed throughout the treatment course and any changes must be communicated to the ECT Team.

**Antipsychotics**

The majority of literature on the use of antipsychotics with ECT involves typical antipsychotics (i.e. chlorpromazine, haloperidol, trifluperazine), with most reports describing the combination of antipsychotic and ECT as safe or without stating adverse effects of this combination (The ECT Handbook, 3rd Ed, 2013).

**Clozapine and General Anaesthesia**

When considering ECT in patients on Clozapine, further advice may need to be sought to manage the individual case.

**Mood Stabilizers**

ECT may decrease seizure duration and increase seizure threshold as it exerts various anticonvulsant properties. Mood stabilising medication with anticonvulsant properties can be continued during a course of ECT treatment but should be withheld the day before ECT treatment is given.

**Anti-epileptics**

The ECT Handbook (3rd Ed, 2013) recommends if an anti-epileptic medication is being used for epilepsy, then medication should be continued during the course of ECT and the ECT anaesthetist must be informed about the patient’s condition; an individualised recommendation re: treatment can then be made.
Anticonvulsants for Mood Disorders

Whilst anti-epileptics are commonly used as a mood stabilizer their pharmacological action would be expected to raise seizure threshold. Anti-epileptics have many drug interactions and can induce (e.g. carbamazepine) or inhibit (e.g. valproate) the metabolism of other drugs. Carbemazepine can reduce response and recovery times to non-depolarising neuromuscular blocking agents; and some patients may show increased sensitivity to suxamethonium. The ECT anaesthetist must be informed of such cases and an individualised recommendation re: treatment can then be made.

Lithium

If lithium is to be used during a course of ECT, lithium levels should be closely monitored. Consideration should be given to maintain the serum level at the lower end of the therapeutic range e.g.0.6mmols or below.. The following guidance from the ECT Handbook (3rd Ed, 2013) has been recommended for those patients taking lithium:

If lithium is not having any benefit, to consider stopping lithium before the course of ECT is commenced

If lithium is effective then continue during ECT but then monitor the patient closely for signs of adverse effects (e.g. delirium, confusion) and maintain the patients lowest effective lithium level

If there are any concerns about using lithium during the course of ECT, then the patient could be switched to an alternative mood stabiliser such as an antipsychotic if the risks outweigh the benefits of continuing lithium

Antidepressants

Antidepressants are generally safe to use with ECT and do not affect its tolerability.SSRIs probably have a minimal effect on ECT overall..

Monoamine Oxidase Inhibitors (MAOI’s)

MAOIs can cause serious interactions with other medications and foods, which may lead to hypertensive crisis and/or serotonin syndrome. When referring a patient on MAOIs for a course of ECT, the ECT Anaesthetist must be informed whether the patient is on this type of drug prior to ECT commencing.

This document is uncontrolled once printed. Please refer to the Trust intranet for the current version.
Acetylcholinesterase Inhibitors

Cholinesterase inhibitors can potentially enhance the effects of suxamethonium. Other side effects that may occur can include bradycardia, cardiac arrhythmias and asystole via an increase in vagal parasympathetic activity. However, evidence also suggests that by taking an acetylcholinesterase inhibitor whilst receiving ECT may have beneficial effects in protecting the individual from cognitive impairment after ECT (i.e. donepezil, galantamine). Therefore, cholinesterase inhibitors can be used during a course of ECT (ECT Handbook, 3rd Ed, 2013).

Benzodiazepines

All benzodiazepines may raise seizure threshold therefore the referring team should discontinue these, where possible, prior to ECT. Long standing prescription of benzodiazepine medication should not be suddenly stopped before a course of ECT but attempts can be made to reduce the doses. Additionally, small doses of benzodiazepines (e.g. 0.5 - 1mg of lorazepam) maybe prescribed and administered 30 to 60 minutes before treatment for patients who are very anxious about the procedure itself.

Hypnotics

Hypnotics should be avoided during a course of ECT where possible. Zopiclone can reduce seizure duration when used the previous night; therefore this should be discussed with the ECT team and where possible stopped (The ECT Handbook, 3rd Ed, 2013).

Hypoglycaemics

Diabetic medication should be omitted on the morning of ECT with a view to their administration after recovery from ECT following measurement of blood glucose concentration.

Management of diabetic patients taking oral hypoglycaemic agents:

This document is uncontrolled once printed. Please refer to the Trust intranet for the current version.
Prioritise treating the patient at the beginning of the list

Give normal medication and diet the evening prior to ECT

Pre-ECT fasting as per protocol

Omit normal oral hypoglycaemic agent on the morning of treatment (with the exception of Metformin which should be administered as prescribed)

Ward staff to check capillary blood glucose (BG) prior to attending the Treatment Centre with the patient

If the BG is 4 mmols or lower ward nursing staff need to then contact the patient’s medical team or duty doctor to discuss the possibility of prescribing dextrogel for the patient to elevate BG levels pre anaesthetic

BG should then be repeated 5-10 minutes later once the patient has received the dextrogel orally with the ECT anaesthetist being advised of readings. Further dextrogel may need to be given as necessary

On the BG levels reaching above 4 mmols the ECT Anaesthetist will risk assess the patient and will advise if the ECT treatment should go ahead or be postponed on the day

Ward nursing staff must handover verbally patient information regarding treatment and care to the nurse escort

Following ECT, offer breakfast plus oral hypoglycaemic agent; where non-registered nursing staff are escorts for the patient it is the responsibility of the ward registered nurse to ensure oral hypoglycaemic medication is administered as prescribed

**Management of diabetic patients on insulin:**

Prioritise treating the patient at the beginning of the list

Give normal insulin and diet the evening prior to ECT

Pre ECT fasting as protocol

Omit morning dose of insulin

Following ECT offer breakfast together with normal or slightly reduced dose of insulin (depending on the size of the meal)
For all diabetic patients check capillary glucose prior to treatment and prior to discharge from the Treatment Centre

**Cardiovascular Conditions**

ECT is considered a low-risk procedure and, barring major clinical predictors of coronary risk (unstable angina, decompensated heart failure, severe valvular disease, malignant arrhythmias), most patients can undergo ECT with appropriate medical management.

**Hypertension**

The patient’s blood pressure should be well-controlled prior to ECT. The patient should take his or her prescribed antihypertensive medications (with the exception of diuretics), with a small sip of water, prior to each ECT treatment (Kellner, 2018). All Angiotensin converting enzyme inhibitors must also be omitted prior to treatment.

**Pacemakers and implantable defibrillators**

Patients with implanted cardiac pacemakers can be safely treated with ECT. The device should be checked by an appropriately trained technician to ensure that it is functioning correctly prior to a course of ECT, if so then no special precautions are required.

Where a patient with an automated implanted cardiac defibrillator is being given ECT, a cardiology technician must be present when ECT is given to inactivate the device prior to ECT and re-start once the treatment is complete. The patient will have continuous ECG monitoring and the team will be prepared to defibrillate should the patient develop an unstable rhythm. The referring team will discuss with the ECT team the plan of care for the patient in such circumstances. Treatment would usually be co-ordinated within NGH.

**Digoxin**

As part of the preparation for ECT, if the patient is regularly prescribed digoxin then digoxin levels will need to be assessed via a blood sample prior to commencing ECT.
Anticoagulants

For patients on anticoagulant therapy this should be discussed with the anaesthetist/haematologist/anticoagulation department prior to treatment commencing on an individualised patient basis. For patients anti-coagulated with warfarin INR levels should be completed routinely on the day before treatment so to assess the therapeutic level for anaesthesia.

Steroids / Asthma medications

Glucocorticoids and beta-adrenergic agonists may be given before ECT to prevent bronchoconstriction. Patients who routinely use a short acting bronchodilator inhaler should do so immediately before the treatment. Theophylline should be avoided or maintained at the lowest effective blood level as it is associated with prolonged seizures and status epilepticus.

Gastrointestinal medications

Patients with gastroesophageal reflux disease (GORD) should be given prescribed medication. On the morning of treatment, medication should be administered with a sip of water preferably two hours before ECT to prevent reflux and possible aspiration.

Travel medication

If a patient is deemed fit to travel but experiences nausea on travelling the medical team referring the patient for treatment will need to discuss these concerns with the anaesthetist and medication maybe prescribed for the morning of treatment to alleviate any symptoms.

Pregnancy

A pregnancy test for females of child bearing age who cannot rule out pregnancy should be undertaken prior to commencing a course of ECT. In cases where a pregnant patient is deemed to be a high anaesthetic risk, consideration should be given to move the patient to acute environment where advanced emergency equipment and monitoring are available.

Over the counter, complimentary or alternative medicines

This document is uncontrolled once printed. Please refer to the Trust intranet for the current version.
During preparation for ECT a comprehensive medication history by the referring team should provide the ECT team with a complete inventory of the following:

**Medication on the morning of ECT**

The prescription regime which has been completed by the referring medical team or on the advice of the anaesthetist for treatment days should be documented on the ECT prescription card, ECT pack and followed accordingly. Routine oral physical medications may be taken by the fasting patient no later than 2 hours prior to treatment. A small amount of water may be taken to facilitate swallowing of tablets. In particular the administration of necessary medications as assessed by the referring team/anaesthetist should be encouraged.

If a patient refuses medication this must also be documented by the nurse on duty and handed over to the treatment centre nursing team on the morning of ECT. A decision will be made by the anaesthetist on whether in such an instance treatment should go ahead.

**Dantrolene**

Dantrolene is stored in a locked drug cupboard within the Treatment Centre and further provision is available at NGH if needed. There is also an updated information sheet from [http://www.aagbi.org/publications/guidelines/docs/malignanthyp07amended.pdf](http://www.aagbi.org/publications/guidelines/docs/malignanthyp07amended.pdf) prominently displayed in each ECT theatre.

Dantrolene should be checked for expiry when the checks are completed before each ECT session by the ECT nurse and the Operating Department Personnel (ODP). Sufficient sterile water, needles and 50ml syringes should also be stored within the locked cupboard directly next to the Dantrolene. Checks should also be done to ensure these are in date.

Evidence that this has been completed can be found in the ECT check book as the ECT nurse should sign this to confirm checks have been carried out and rectified if applicable.

This document is uncontrolled once printed. Please refer to the Trust intranet for the current version.
Inpatients/Day Patients

Inpatients

Prior to the first treatment, a ward visit is undertaken by the ECT nursing team. This is to check documentation, ensure appropriate investigations have been undertaken, and meet with patient / family / carer to answer any questions they might have. The ECT nurse will complete a pre-ECT assessment and communicate with the referring and nursing team to ensure nursing and medical information is complete. They are responsible for the following:

Informing the Treatment Centre re; proposed treatment

Explaining the procedure for ECT treatment to the patient/relatives/carer as appropriate

Ensuring relevant documentation is completed (e.g. medical history, physical, bloods, consent or appropriate MHA documentation, ECG, CXR, any other tests, investigation or examinations available) and that ECT is prescribed

Ensuring the patient is aware of the reasons they will be unable to have no solid food after 03:00am and that only a small amount of clear fluid may be consumed up to 07:00am on the morning of treatment

To advise where patients are frail and dietary intake poor that the night staff should encourage patients to have a support to assist in maintaining blood glucose levels required for safe anaesthesia

Staff on duty the night preceding treatment must be aware of treatment the next day and ensure the patient is nil by mouth as above. A nursing care plan must be documented regarding medication that needs to be omitted or given prior to ECT

On the morning of ECT, patient to be reassured and reminded again of nil by mouth, to maintain nil by mouth status consideration should be given to the patient’s level of observation

Pre-ECT checklist to be documented by ward nursing staff. If patient’s vital signs are not within normal parameters then nursing staff are to contact the Treatment Centre

It is important to record blood glucose levels pre-ECT as low blood glucose levels can cause prolonged seizures. Nursing staff are advised to contact the treatment centre if blood glucose is below 4 mmols or below

Identify and ensure nurse escort (who is known to the patient) is aware of patient’s legal status and of the proposed treatment

On patient’s return to ward monitor mental and physical status including completion of ECT patient orientation checklist

This document is uncontrolled once printed. Please refer to the Trust intranet for the current version.
Record treatment and relevant information in patient notes/SystmOne.

Inform referring team and Treatment Centre of untoward effects

Ensure patient is reviewed between treatments (see Chapter 11) especially for cognitive impairment and improvement in mood

Ward staff will ensure all relevant information is completed. This will include: Patient Ward Pre-ECT checklist, a Core Nursing Care Plan, cognitive assessments and an ECT Patient Orientation Checklist. Subjective and objective comments will be completed by the ward nursing team and MDT on commencement of the treatment.

**Fasting prior to ECT**

Details of the length of fasting time:

Do not consume solids and particulate drinks (i.e. milk, tea with milk) 6 hours prior to treatment

Sips of water can be taken up to 2 hours prior to treatment

On the evening prior to ECT it is recommended that the patient is offered and encouraged to eat supper before retiring to bed. This is so to maintain the patient’s blood glucose level and minimizes the risk of nausea post-anaesthesia

**On the day of treatment**

Before ECT is administered:

The nurse collates QIDS, Becks and HAMD that have been completed by the patient.

the patient is given any further information they may require

the patient is introduced to all those who will be present during treatment

the healthcare professional explains what he/ she is going to do and why

the ECT nurse explains the procedure to the patient again, gives reassurance and spends time with relatives answering questions

the ECT nurse provides information about the safekeeping of valuables; location of toilets and arrangements for further appointments

This document is uncontrolled once printed. Please refer to the Trust intranet for the current version.
Identity bracelets

It is a requirement that all patients undergoing an anaesthetic for ECT wear an identity bracelet. On arrival at the Treatment Centre, if patients do not have an identity bracelet, they will be issued with one. A red identity bracelet is used if the patient has experienced an allergic reaction and a white identity bracelet is used if there are no known allergies. If it is not possible to place an identity bracelet on the wrist this will be placed on the leg above the ankle (for further information please refer to NHFT policy CLP061 (2016).

Where a patient lacks mental capacity (e.g. unconscious patients) then the person accompanying the patient to hospital may be another healthcare professional, next of kin or appointed patient advocate and they will be asked to verify the identity of the patient. An identity bracelet must be worn on both the patient’s wrist and ankle.

Patient escorts

Patients are escorted to the ECT clinic. Arrangements are made to stagger arrival times, to reduce waiting times.

Inpatients are escorted to and from the ward by a suitably trained member of staff however, when more than one patient is receiving ECT on the same day from the same ward, an assessment can determine the professional level of escorts required dependent upon an individual’s patient’s history, presenting behaviour and level of risk. When selecting the escort, the nurse in charge of the ward considers risk to the patient, in discussion with the ECT team, and is accountable for any consequences of that selection.

Consideration should be given to the level of experience and competence of those undertaking the duty of an escort and also the relationship between the patient and the member(s) of staff. Where possible the patient should be fully involved in this process.

The level of observation prescribed, as per the NHFT Observation Policy (CLP008, 2019) is taken into account when determining the need for escorts. However, due to the nature of patients’ attending for ECT treatment the nurse escort must ensure their patient remains within eyesight observations whilst at the Treatment Centre.

This document is uncontrolled once printed. Please refer to the Trust intranet for the current version.
At the time of leaving the ward, all staff involved in escort duties must be clear about the responsibilities and understand any conditions that may apply. This process should be recorded in the ECT Care Plan.

A qualified nurse or equivalent escorts the patient from the waiting room through to the treatment area, recovery and then back to the ward. The escort should be known to the patient, be aware of the patient’s legal and consent status and have an understanding of ECT. The escort also acts as an advocate, relaying concerns and feeding these back to the members of the team and should be able to provide care and support for the patient throughout the process of ECT. The escort ensures that the patient’s belongings and valuables are properly stored.

The nurse escort must also be able to update the ECT team on any changes in terms of the physical and mental well-being of the patient, e.g., this may relate to medication changes or fluids that may need to be given on the day of treatment.

**Day patients**

An ECT Day patient is where an individual attends for treatment from their home or a remote site, including from St Mary’s Hospital, St Andrew’s Hospital or Milton Keynes Hospital. When the patient is assessed by the anaesthetist as requiring treatment at NGH, NGH is also then classed as a remote site for NHFT staff and patients.

Day patients will be directly discharged back home to the ongoing care of a responsible adult without the interim involvement of an inpatient ward or day hospital. Such patients will be physically fit and well supported, practically and emotionally, by family or friends.

Inpatients from St Mary’s Hospital, St Andrew’s Hospital or from Milton Keynes will be discharged back to the care of the escort/s and to the referring team. Appropriate risk assessments and fitness to travel should be considered with all travelling patients.

If there any concerns over any of the above, these should be rectified prior to ECT treatment or consideration given to admitting the patients overnight on the day of the ECT treatment or a brief admission to hospital for the duration of the ECT treatment course.

This document is uncontrolled once printed. Please refer to the Trust intranet for the current version.
Responsibilities of the referring team:

It is the responsibility of the referring consultant or CMHT to provide a telephone referral to the ECT team prior to treatment, outlining the intended treatment plan.

It is the responsibility of the referring team to inform the patient’s GP of the planned course of treatment together with the proposed days of treatment, in case of any post-ECT complications following discharge.

It is the responsibility of the RC to discuss driving and ECT as part of the basic ECT workup.

In addition, the psychiatric and physical work up is required in the same way as for inpatients.

Special provision will need to be made to ensure monitoring of mental and cognitive state between treatments and updated ECT prescriptions as required.

The referring team must remain in regular contact with the ECT nurse during the duration of the ECT treatment course.

The fasting requirements are the same as for inpatients.

There is specific information for day patients included in the ward pack including a day patient leaflet, day patient form, RCPsych driving leaflet, fasting guidelines and information relating to the supervising adult.

The patient should be escorted to the ECT clinic by at least one qualified member of staff.

Day patients are advised to arrive 15 minutes prior to appointed time and given specific guidelines relating to driving, drinking alcohol, signing legal documents, caring for children and being accompanied home after each treatment.

**Day patient discharge**

Patients receiving ECT as a day patient will have had the procedure explained by their referring health professional to ensure requirements for safe and effective ECT are met.

Day patients and carers are asked to sign a day patient ECT discharge form (please refer to the ward pack) to confirm they have read and understood the following information.

During ECT a general anaesthetic is used and therefore the following standard precautions apply:
Patients must:

Not leave the hospital if feeling unsteady or confused

Not have sole responsibility for the care of children

Not drive for the whole duration of their course of ECT treatment, or until advised that they are fit to do so by their RC and this is documented

Not drink alcohol for 24 hours

Be accompanied home following each ECT treatment

Have appropriate supervision by a responsible adult for 24 hours following each ECT treatment

Not sign any legal documents for at least 24 hours following each treatment

Not operate machinery or appliances for 24 hours

**Information needs of the Supervising Adult.**

The person who assumes this role requires specific information to allow them to initially make the decision to carry out the role and understand the nature and purpose of doing so.

**ECT and patients with an ASA score of 3 or above**

Provision is available for such patients deemed as high-risk patients, so ECT is given at main theatres at the NGH. The ECT nurses will co-ordinate this and advise the referring team of the specific department and appointment time; however it is the responsibility of the referring team to arrange transport to and from the local general hospital.

**Procedure for escorting a patient from a remote site**

Generally patients referred from St Mary’s Hospital will be transferred to Berrywood Hospital for the duration of their ECT treatment. In circumstances whereby the patient is assessed as fit to travel and is able to then evidence of fitness to travel should be documented and made available from the referring RC before the first and each subsequent treatment.

This document is uncontrolled once printed. Please refer to the Trust intranet for the current version.
At the point where a patient has been accepted for ECT, the patient’s RC (or a healthcare professional nominated by the Consultant and this is documented) and a qualified nurse with direct responsibility for the patient will determine the required escort. This will always include at least one qualified registered nurse and one other who is known to the patient. Limits set under s17 MHA take precedence.

This decision should be recorded in the patient’s notes, and a plan of care constructed which clearly sets out the escort requirements any other relevant information. In determining the level of escort required, the patient’s history, presenting behaviour and level of risk both psychiatric and physical must be taken into account. Additionally, consideration should be given to the level of experience and confidence of those undertaking escort duties and also the relationship between the patient and member (s) of staff. Where possible the patient is fully involved in this process.

Specific issues to consider include:

The sex of the patient
Cultural / ethnicity issues
Dietary needs
Manual handling assessment

The level of competence and number of escorts required is a risk determined factor and a clearly documented risk assessment should be undertaken by the referring tam; this information must be made available to the ECT team

Absconding risks
Psychiatric concerns for example: risk of suicide, self-harm, violence and effect on mental state due to repeated journeys to receive treatment

In most circumstances the patient will be transported by hospital transport or taxi and the care plan should reflect this. If this mode of transport is not suitable then the care plan should indicate specifically what type of transport should be used and why.

The level of observation prescribed as per NHFT Observation Policy (CLP008, 2016), is taken into account when determining the need for escort levels. However, whilst the patient is in the treatment centre, the patient will be nursed on a one-to one-eyesight observation basis at all times.

This document is uncontrolled once printed. Please refer to the Trust intranet for the current version.
Before leaving the remote site, all staff involved must be clear about the responsibilities of undertaking the escort duties, and understand any conditions which may apply. Importantly the escorts must understand their roles and what is expected of them in the case of a psychiatric/medical emergency, or if the patient attempts to leave the escorting staff. The risk assessment must detail a clear plan in the event of the patient attempting or actually absconding whilst in the care of escorting staff.

As per NHFT protocol, escorts are responsible to ensure all relevant documentation accompanies the patient to ECT. Please refer to the pre-ECT checklist within the ECT pack.

**MHA Considerations**

For any detained patient, a current Section 17 leave form must be visually checked by a registered nurse prior to the patient leaving the unit.

Patients who are treated either as a day patient from home or as an inpatient from a remote site will be, where possible, treated at the beginning of the session to allow maximum time for recovery.

**Patients who are deemed unfit to travel by the RC/Aнаестhetist or Lead ECT Consultant**

In this instance a thorough assessment must be documented and consideration given to admission to Berrywood or if required due to the patient being medically compromised NGH for the duration of the ECT treatment.

In addition, patients who require ECT treatment at NGH may also need to be admitted to Berrywood Hospital. This decision should be made by either the RC, lead ECT Consultant or the Anaesthetist.

**Anaesthetic Practice**

At NHFT, ECT should always be given by an experienced Anaesthetist, capable of managing potential complications at a remote site. Assistance is provided by a suitably trained Operating Department Personnel (ODP) and patients recovered by staff who have received the appropriate theoretical and practical experience (RCoA 2017). NHFT must comply with the ECTAS standards (2019) and the ECT.
Handbook (3rd Ed, 2013, p.14-27) with regards to Anaesthesia for ECT. Patients are assessed by ASA grade prior to treatment as outlined below:

ASA GRADE (American Society of Anaesthesiologists, 2014).

1. A normal healthy patient.
2. A patient with mild systemic disease (not affecting lifestyle).
3. A patient with severe systemic disease (affecting lifestyle).
4. A patient with severe systemic disease that is a constant threat to life.
5. A moribund patient who is not expected to survive without the operation.

Typically patients with ASA 1-2 are treated at the Treatment Centre, Berrywood. ASA 3 or above following an anaesthetic assessment provision maybe organised at NGH. Prior to treatment being given the ASA grade is reviewed and documented on the World Health Organisation (WHO) adapted version 5 checklist routinely. This is completed prior to any patient being treated.

**Patient requirements**

A full anaesthetic assessment is required prior to a patient commencing ECT.

**Before ECT**

Patients will be escorted to a waiting area prior to treatment. Adequate staffing (as determined by the Nursing Protocol) will allow the safe observation of patients waiting for, undergoing and recovering from treatment. Prior to being brought from there to the treatment area a checklist will be completed to ensure that fasting has been complied with and, in the case of a patient who will be discharged to the community, a check will be made to ensure that a suitable escort will be available to accompany the patient home.
The anaesthetist will check the service ability of the equipment including suction apparatus, and that emergency equipment and drugs are available and in date. A record should be kept of the equipment check and documented prior to each session (this should be signed by the ECT nurse, ODP and/or the Anaesthetist). The ECT nurse, ODP or and anaesthetist will check the defibrillator.

Dental issues will be considered and documented prior to the first ECT session. As the patient is unconscious during ECT, pressures on the teeth, usually limited by conscious control can be exceeded and may result in damage. The potential for damage to the teeth and jaw is greatest during the passage of the stimulus current. This demands the prior positioning of a suitable single use bite block in all patients. To further reduce the risk of damage to dentition, the lower jaw may be held closed as the stimulus is applied. Initial contraction of the masseter and other muscles of mastication are due to the direct effect of ECT stimulation and should not be mistaken for inadequate muscle reaction (ECT Handbook, 3rd Ed, 2013).

A nurse lead briefing exercise will be completed on each treatment day relating to all patients that are undergoing scheduled treatment. During the handover period pertinent and relevant information is shared within the multi-disciplinary team. The MDT present at this meeting will also discuss future patients that are awaiting treatment and review existing treatment plans for all patients.

**During ECT**

On transfer to the treatment area the patient will be placed on the treatment trolley, shoes and tight clothing such as belts, neckties, jewelry and tongue piercings / dentures removed. At this stage the WHO checklist is completed.

Monitoring will be applied, the minimum requirement for this being non-invasive blood pressure measurement, pulse oximetry, end tidal CO₂ and electrocardiogram. Baseline measurements of blood pressure, heart rate, O₂ saturation and blood glucose will be determined and a peripheral vein will be cannulated. Electrodes for recording the electroencephalogram (EEG) will be applied.

Anaesthesia for ECT not only enables the procedure but also may have a significant influence on efficacy. The objective of anaesthesia is to provide the shortest period of unconsciousness necessary to cover muscle relaxation. A rapid return to full consciousness and orientation is desirable.
Anaesthesia administration follows best practice and 'Recommendations for standards of monitoring during anaesthesia and recovery' (Association of Anaesthetists of Great Britain and Ireland, 2016) are followed (http://www.aagbi.org and http://www.rcoa.ac.uk).

Initially the dose of induction agent is usually titrated against the patient’s response but subsequent doses or agent may be modified in the light of clinical response, seizure threshold or haemodynamic responses. Any proposed change should be discussed at the team brief.

Induction of anaesthesia will routinely be with Propofol however this is the decision of the Anaesthetist and a different Anaesthetic agent may be used. This would be discussed with the MDT as a change in an anaesthetic agent may affect the stimulus dose. Other Anaesthetic agents include Thiopentone / Methohexitone.

This will be followed by a dose of suxamethonium sufficient to ensure relaxation of masseter and extensor muscles. Suxamethonium remains the relaxant of choice due to its rapid onset and short duration.

Pseudocholinesterase deficiency, neuromuscular disease, hyperkalemia, the presence of cholinesterase inhibitors, a history of malignant hyperthermia, neuroleptic malignant syndrome, catatonia or major burns may preclude its use and suggest conversion to a non-depolarizing agent. Rocuronium, Atacurium and Mivacurium are acceptable alternatives although their relatively prolonged action will require a reversal agent (E.g. Sugammadex).

Once the drugs have been given the patient will be hyperventilated A single use bite block should be inserted in all patients to avoid unnecessary stress on the temporomandibular joints.

At this point the treatment paddles will be applied to the prepared area and an electrical stimulus calculated in accordance with the psychiatric protocol applied.

When clonic movement ceases and EEG analysis completed, ventilation of the lungs will continue until there is return of spontaneous ventilation. The seizure is observed and recorded both visually by clinicians and by the EEG.

This document is uncontrolled once printed. Please refer to the Trust intranet for the current version.
After ECT

Measurement of post-treatment blood pressure, O₂ saturation and heart rate will be recorded in the main theatre until reflexes have returned. The patient will then be transferred to the recovery area where they will receive supplemental oxygen by mask, have pulse oximetry and capnography monitoring until it is deemed safe that this be discontinued. In the recovery area the patient will be accompanied at all times by a dedicated member of staff who has been adequately trained in the care of the unconscious patient. The patient should be left to recover in a quiet environment and no attempt should be made to hasten recovery by the application of verbal or painful stimuli.

When recovery from treatment is deemed satisfactory the patient may be given something to drink and something light to eat. Time to discharge the patient from the recovery area to the ward or to home will be decided by the recovery nurse in charge of the treatment session.

Other provisions

For patients with a known allergy or sensitivity to anaesthetic drugs provision will be made for their treatment in an operating theatre or recovery room complex at the local general hospital.

A post treatment de-brief session is delivered following every clinic. This is documented in a debrief log. Learning and changes to practice identified during debrief are reported via a monthly audit which is displayed for patient and staff viewing.

Adequate records are kept of treatment in line with NHFT policy.

Adverse incidents and near misses are recorded, reported and investigated according to NHFT Trust policy.

Treatment Procedure

The Administration of ECT
The frequency and duration of a course of ECT follows best practice. ECT is normally administered twice a week; (Tuesdays and Fridays starting at 8am) however in an emergency these arrangements may alter. The treatment and recovery room are prepared by the ECT Team prior to patients arriving in line with local NHFT policies (2015) (http://www.nhft.northants.nhs.uk/Content/Policies_and_Procedure/Infection_Control_Policies/index.jsp).

The referring team assess the patient before each treatment with attention to possible adverse side effects and to see if further treatments are necessary. The RC prescribes no more than two treatments at a time before reviewing and re-prescribing further treatments.

The ECT clinic protocol reflects the current guidance produced by the RCPsych in The ECT Handbook (3rd Ed, 2013). If cognitive side effects occurred during a previous course of ECT or become apparent during the current course, the use of unilateral ECT at a dose significantly exceeding the Seizure Threshold (ST) should be considered see ‘Stimulus Dosing’ (ECT Handbook, 3rd Ed, 2013) regarding recommendations for the non-dominant hemisphere. The referring team is responsible for ensuring the ECT clinic is informed of any indication for change in mode of administration. The usual course range is between 6-12 applications. It is recommended that in most cases at least 6-8 applications should be considered before abandoning trial if no clinical response is seen. It may be worth continuing up to 12 B/L treatments before abandoning ECT in patients who have shown definite but slight or temporary improvement with early treatments (ECT Handbook, 3rd Ed, 2013).

**Determining the Seizure Threshold**

Seizure threshold is defined as the minimum charge required inducing unequivocal ictal EEG activity (i.e. polyspike followed by 3Hz spike and wave activity). This should last at least 15 seconds so that a generalized seizure can be clearly documented. The seizure threshold is established by attempting to induce a seizure, first with the lowest dose, then successively higher doses of charge in a procedure called ‘stimulus titration’. For the vast majority of patients it is possible to establish seizure threshold in the first treatment session. When stimulated at a sub-threshold dose, the patient may grimace due to the stimulation of facial muscles and there may be vagal stimulation causing bradycardia or brief asystole. **However**, seizures may develop gradually over 10-15 seconds slowly generalizing to physical movements therefore it is advisable to wait at least 20 seconds before re-stimulating to ensure that no seizure is developing. There should be a maximum of two re-stimulations per titration session in order to adequately safeguard patient oxygenation and ensure that the seizure will be modified. The anaesthetist should be made aware at the start of the treatment that the patient may require re-stimulation and may require taking extra precautions, including more anaesthesia if they feel it is warranted.

This document is uncontrolled once printed. Please refer to the Trust intranet for the current version.
If the third stimulation results in an adequate seizure, the patient should be stimulated with the ‘skipped’ threshold dose at the next session to determine whether this might be the real seizure threshold and then treated with supra-threshold ECT thereafter. For example a patient may be stimulated at 10%, 15% and then 35% the next session would commence at the ‘skipped threshold’ of 25%. Each sub-convulsive stimulation raises seizure threshold so if re-stimulation has been necessary, it may be overestimated. This should be borne in mind when estimating seizure threshold. If after three stimulations a seizure is not elicited, then stimulation should resume at the next session with the highest dose used at the last unsuccessful session.

**What if the seizures become too short during the course of ECT?**

After seizures demonstrating 15 seconds or longer of typical 3-5 Hz spike-wave complexes, patients should not be re-stimulated. If a short seizure of for example, 5-10 seconds are elicited and there has as yet been no clinical response (either because it is early in the treatment course or the patient has failed to respond because of short seizures), then the patient should be re-stimulated at the next higher level in the treatment dosing protocol to ensure an adequate treatment. For patients who have shorter seizures later in the treatment course but are having continuing satisfactory clinical improvement, then re-stimulation is not necessary but the treatment dose could be increased by one level at the next treatment session (Please refer to Charts 1-6 Seizure Threshold (ST) determination and Stimulus Dosing).

Seizure duration may rise across the ECT treatment course therefore in order to give adequate supra-threshold dosages it is important to ‘stay ahead’ of a rising seizure threshold otherwise treatment dose may not be optimal. It is recommended to increase the initial treatment dose by one level when seizure duration begins to shorten by >20% relative to the second session. If there is an inadequate seizure then re-stimulate at the next treatment dose. If successful, use this new dose level as the initial treatment dose at the following session.

In order to be optimally therapeutic each induced seizure should be adequate in terms of its quality and duration. The hallmark of generalized cerebral activity is the tonic-clonic convulsion after an initial tonic contraction of the muscles, there is a longer, clonic phase of rhythmic alternating contraction and relaxation of the muscles on both sides of the body. There may be a delay of a few seconds after the end of the electrical stimulation before any convulsion is seen - this is known as the latent phase.
The clinical efficacy of ECT depends on the induction of generalized cerebral seizure activity. This is by the appearance on the EEG of widespread high frequency spike waves (polyspike activity) followed by slower spike and wave complexes, typically around 3 Hz. Usually generalized cerebral seizure activity is followed by a phase of relative or complete suppression of electrical activity (post-ictal suppression). The EEG is also used to ensure there is no prolonged seizure activity. The intensity of seizure activity will be modified by use of muscle relaxant.

Timing of seizure activity can be read from the Thymatron IV display and, with use of EEG monitoring, it should not be routinely necessary to isolate a forearm from muscle relaxant by means of Hamilton Cuff method. Monitoring of motor seizure via application of EMG leads to a forearm is available.

It remains important to time activity both observed and on EEG, there is no simple relationship between the length of the convulsion and the therapeutic efficacy of treatment nevertheless it is important to time the convulsion because it means the treating healthcare professional ensures that a generalized tonic-clonic convulsion has been induced and can alert the treating healthcare professional to seizure shortening (The ECT handbook, 3rd Ed, 2013).

It is not possible to predetermine the number of ECT treatments that will be required. Therefore, prescribing a set number of treatments is not warranted. The number of treatments will be determined by patient response, with the ultimate aim of achieving remission. Referring teams should be encouraged to consult with patients and the ECT team about dosage and laterality, balancing the benefits and risks for the individual patient.

**Electroencephalogram (EEG)**

EEG monitoring provides the most accurate measure of cerebral seizure activity. It allows determination of seizure duration, the endpoint and the detection of prolonged seizures.

At least dual channel EEG tracing is required. A baseline EEG should be taken prior to treatment. In normal circumstances an induced motor seizure correlates with an EEG progression from low to high amplitude poly spike activity during the recruitment phase corresponding to onset of tonic contraction. During the clonic phase there is a change to a spike and wave pattern of gradually decreasing frequency tending to 3 Hz. The amplitude will increase and gradually decrease.
EEG seizure activity will frequently exceed motor seizure activity in duration. Care should be taken to minimize head movement to avoid artefact on EEG and allow more accurate determination of seizure end point. It is worth noting that fronto-mastoid leads may produce ECG artefact on EEG.
EEG Placement

**ECT electrodes (pink):**
Unilateral = fronto-temporal + occipito-parietal

**EEG electrodes:**
Red – above each eyebrow
Black – mastoid, behind each ear
   (I.e. one pair on each side)
Green (Thymatron) – to shoulder (earth)
Determination of end point of the EEG seizure activity

In most cases there is a clear end point to spike and wave activity (post-ictal suppression) followed by resumption of baseline EEG activity or in many cases by post-ECT suppression of wave amplitude. However, in some cases there is a less clear end point and it can be difficult to determine the end point with any degree of accuracy.

The machine settings for Thymatron System IV

Factory default settings are used:

0.5 dose is the default setting and allows dosage increments of $5\% / 25 \text{ mc}$ up to $200\% / 1008 \text{ mc}$.

Electrode Placement and Application

The healthcare professional performing ECT should follow these steps:

Apply a small amount of electrode gel to ensure thin but complete covering of both electrodes.

Identify the correct placement sites.

Bilateral position = 4cms above midpoint of line between external auditory meatus and lateral angle of eye.

This document is uncontrolled once printed. Please refer to the Trust intranet for the current version.
Bi-lateral electrode placement

Unilateral position = 4cms above midpoint of line between external auditory meatus and lateral angle of eye, and occipito-parietal junction.

Right Unilateral electrode placement

Hold electrodes firmly and rotate at first to slightly abrade the skin to reduce static impedance and gain optimal skin conductivity.

Ensure that there is not excessive electrode gel or other moisture on the electrodes or on the patients scalp as this may lead to short circuit possibly resulting in a shock or the patient receiving a scalp burn.

Maintain steady pressure once position achieved as alteration of position may result in change in static impedance.

If using single use Thymapad electrodes please refer to the Somatics Guidelines in the ECT department.

Communication with ECT nurse.

This document is uncontrolled once printed. Please refer to the Trust intranet for the current version.
The administering healthcare professional says simply and clearly to the nurse,

For example: “Test at 50%”

The ECT nurse then presses the impedance button (which measures the resistance to conduction in millicoulombs) and says “testing at 50%”

The ECT nurse then reads out the impedance figure, for example “1510” or if impedance is > 3000, “test failed”

If impedance test is > 3000 test has failed, this usually indicates high static impedance due to:

- Inadequate physical contact between electrodes and scalp contact
- Inadequate electrode gel or inadequate operator pressure
- Faulty connection of cables to ECT machine

Check electrode gel and reposition electrodes before requesting Impedance Test again.

If impedance test is < 100, test has failed and this usually indicates:

- Short circuit possibly due to tracking back of excess electrode gel
- Electrodes too close together especially in unilateral positioning

Once test has passed the administering healthcare professional says clearly:

“Treat at XX%”

ECT nurse says, “Treating at XX%”

ECT nurse then presses the treat button and charge is delivered accompanied by a buzzing sound, the treat button must be depressed during the buzzing

Once charge delivery is complete buzzing ceases, the nurse can release the treat button, and electrodes can be released

This document is uncontrolled once printed. Please refer to the Trust intranet for the current version.
Monitoring/Timing of a Seizure

The administering healthcare professional ensures that an adequate seizure is induced. In order to be optimally therapeutic each induced seizure should be adequate in terms of its quality and duration. Visible motor seizure activity should be tonic-clonic in form and generalized over a bilateral distribution. Typical seizure or spike and wave activity should be visible on both EEG channels; the EEG is also used to ensure there is no prolonged seizure activity. The intensity of seizure activity will be modified by use of muscle relaxant.

It is recommended that the convulsion is timed from the end of the electrical stimulation to the end of the generalised (bilateral) clonic activity. If there is a significant discrepancy between the end of generalised clonic activity and the end of clonic activity in one limb, it would be prudent to record both times. Convulsive activity of the muscles of the face can be seen with focal cerebral activity and cannot be relied upon as an indicator of generalised seizure activity. Timing can be read from the Thymatron IV display; and with use of EEG monitoring it should not be routinely necessary to isolate a forearm from muscle relaxant by means of Hamilton Cuff method. Monitoring of motor seizure via application of EMG leads to a forearm is available.

The ECT nurse will observe for motor activity at the end of the stimulus (i.e. at the end of the long buzzing tone and take note of the length of the motor seizure by recording the accurate seizure length from the timings on the Thymatron System IV). The healthcare professional should assist in judging the end point of the seizure and should note the length of the seizure, for later recording in the Prescription chart and Treatment Centre log book.

EEG monitoring is used as the most reliable method of assessing the length of seizure. If it is not used there is a significant risk of:

- Missing sub-clinical cerebral seizures leading to inappropriate re-stimulation at a higher dose
- Missing prolonged cerebral seizure, which is not apparent clinically and therefore failing to treat it

EEG monitoring should be continued until seizure activity has definitely ceased or, in the case of a missed seizure, for at least 20 seconds. Remember that the onset of seizure may sometimes be delayed, so avoid too rapid switching off of the EEG tracing.

This document is uncontrolled once printed. Please refer to the Trust intranet for the current version.
The purpose of asking the clinical team to record visible seizure duration is to ensure that the patient is observed closely during the seizure. A brief convulsion should prompt the ECT team to ensure that the necessary quality of the seizure activity has been induced. It is not wise to rely on EEG monitoring alone to time seizures. On some occasions clinically evident generalised convulsions are not associated with detectable EEG evidence of cerebral seizure activity (Whittaker et al, 2007). The brain is well protected by the skull and scalp, which may prevent seizure activity being picked up by skin electrodes. However, EEG monitoring is the simplest means of assessing cerebral seizure activity (Scott, 2007). As it is difficult to be certain whether a seizure has occurred unless either tonic-clonic muscle activity or an EEG showing polyspike followed by 3Hz spike and wave activity is observed.

There has been much research interest in the potential of EEG monitoring to contribute to the assessment of seizure adequacy; unfortunately there are no clear answers nevertheless EEG monitoring will assist in the decision making process on the need to increase the dose over a course of treatment.

If high amplitude typical cerebral seizure activity and typical postictal suppression appear on the EEG early in the course of treatment but progressively the EEG tracings show less clear-cut or few typical features then this suggests that the seizure threshold may be rising. Progressive EEG changes must, however be assessed in the context of the necessary clinical monitoring, it is important to remember the ECT / referring team are treating the patient and not the EEG tracing.

EEG findings may also be helpful in making a decision to discontinue ECT in a patient who is not showing a clinical response. If high-amplitude synchronous typical cerebral seizure activity of adequate duration and typical post-ictal suppression appear consistently on the EEG the lack of response cannot be attributed to poor technique from the ECT team.

**Recovery**

Once patients have recovered spontaneous respiration, the Anaesthetist will then advise that patients may be moved from the treatment area to the recovery area under the care of a recovery practitioner who is competent in caring for the unconscious patient. The recovery practitioner will be fully conversant with aspiration / suction techniques, resuscitation procedures, including basic life support and will inform the Anaesthetist of any cause for concern. It is the Anaesthetist’s

This document is uncontrolled once printed. Please refer to the Trust intranet for the current version.
responsibility to pass on any specific instructions to the nurse in charge of recovery; this would include any additional medication or intravenous fluids.

The Anaesthetist will hand over the patient to the recovery nurse and check that they are satisfied with the patient’s condition.

The recovery nurse ensures that an adequate airway is maintained.

The patient’s pulse, O₂ saturation and blood pressure are monitored until stable. There is one to one monitoring by a nurse until the patient is fully conscious and communicating. Levels and length of post treatment confusion and disorientation are monitored, documented and treatment reassessed if cognitive impairment is a problem.

Once the patient is awake and can respond to commands to move, he / she is moved to the post recovery waiting room to recover fully and offered something to eat and drink.

Both the Anaesthetist and Psychiatrist remain in the building and contactable until all patients recover full consciousness and are physiologically stable.

The recovery nurse or anaesthetist will decide in accordance with local anaesthetic guidelines when the patient is fit to transfer into the post recovery waiting room with their escort. If the escort is concerned about their patient they should ask the recovery or ECT nurse for advice and assistance.

Only the Anaesthetist or Lead ECT / recovery nurse may authorise for patients and escorts to leave the department. Transfer back to the ward is under the observation of the accompanying nurse.

**Discharge Criteria**

The following discharge criteria are taken from The British Association of Day Surgery Handbook (2019).

This document is uncontrolled once printed. Please refer to the Trust intranet for the current version.
The patient will be assessed as to their fitness for discharge from the department by one of the lead ECT / recovery nurses using the following criteria:

Stable blood pressure, pulse, respirations
No respiratory /breathing problems and satisfactory oxygen saturation levels
Fully awake and orientated
Minimal nausea, vomiting or headache
Can walk to the ward or transport steadily without feeling faint or unwell (wheelchair / trolley to be used only if used for arrival or is routinely used by the patient)
Has at least take fluids orally but preferably food too
Accompanied by an escort
Level of suicide risk for both inpatients and day patients
Fitness to travel for patients from remote sites post ECT

If these criteria cannot be met then the patient must be retained in the ECT department and the Anaesthetist / Duty doctor / CHRTT contacted to provide an appropriate course of action. The ECT doctor / Duty doctor / Anaesthetist, Lead ECT nurse or recovery nurse can make the decision that the above criteria are met and patients are fit for discharge form the ECT department. In addition for the first treatment the patient will be asked to remain the department for up to 2 hours following recovery and if there are no problems this may be changed to 1 hour for subsequent treatments. The Anaesthetists advice should be sought and followed regarding discharge.

Observation is continued on the ward and ward staff should bring to attention of the medical / psychiatric team any complaint the patient may have following treatment and report any cognitive or non-cognitive effects.

Record Keeping

The World Health Organisation (WHO) amended ECT checklist should be completed before each individual treatment.

This document is uncontrolled once printed. Please refer to the Trust intranet for the current version.
At the end of each Treatment session:

A WHO checklist debrief session with the Anaesthetist, treating doctor, ECT nurse and recovery practitioner to highlight issues and good practice will be undertaken. A monthly report of the debrief sessions will be made available to the team on the M drive.

The healthcare professional administering ECT should record details of the treatment. This includes treatment number, dose delivered, observed seizure activity, EEG seizure activity and recommendations for the next treatment. The healthcare professional is also required to sign the logbook and/or the prescription chart.

In order to assist for audit purposes reasons for not re-stimulating when a missed or brief seizure occurs need to be documented in the logbook.

The Anaesthetist should record the Anaesthetic agent, the muscle relaxant and any other drugs, method of ventilation that has been given. This would include dosage. The anaesthetist is also required to sign the prescription chart.

Any adverse effects are recorded.

Details are recorded in both the ECT logbook and Prescription chart.

After each treatment session the ECT nurse and/or recovery must record and scan onto Systm One all completed ECT documentation.

At the end of the course of treatment the referring team must ensure that all ECT documentation has been scanned onto Systm One and the episode closed.

Confidentiality of Patient Information

Confidentiality of Patient Information Code of Conduct for Trust Staff is strictly adhered to. This is available on the Trust intranet site.

Stimulus Dosing

Stimulus dosing – Initial dose titration

This document is uncontrolled once printed. Please refer to the Trust intranet for the current version.
In order to ensure that adequate seizure is triggered by the minimum effective electrical dose, stimulus dosing is used. The individual’s Seizure Threshold (ST), the minimum amount of electricity which will trigger an adequate seizure in a given individual is determined by initial titration of dose upwards.

Stimulus Dosing involves starting off with a low dose of electricity and increasing by small increments until a seizure is produced.

The first treatment session attempts to determine the ST while ensuring the patient has an adequate seizure. Please refer to the following charts 1-6:
ECT Day No 1 – Bilateral Treatment for Adults

Set machine at 10% = 50mC
Deliver Treatment

Seizure Produced

Yes

Session complete ST=10% (50mC)

Increase Dose to 15% = 76mC
next tx day maintain this dose unless factors change *(see chart)

Seizure Produced

Yes

Session complete ST=15% (76mC)

Increase Dose to 25% = 126mC
Next tx day maintain this dose unless factors change *(see chart)

Seizure Produced

No

Increase Dose to 15% = 76mC
Next tx day maintain this dose unless factors change *(see chart)

Increase Dose to 25% = 126mC
Next tx day maintain this dose unless factors change *(see chart)

Seizure Produced

Yes

Session complete ST=25% (126mC)

Increase Dose to 40% = 202mC
next tx day maintain this dose unless factors change *(see chart)

Seizure Produced

No

Increase Dose to 25% = 126mC
Next tx day maintain this dose unless factors change *(see chart)

Abandon Session

Check machine and electrodes begin at 35% = 176mC next tx day and titrate up

ECT Day No 2 – Bilateral Treatment for Adults

If no seizure on Day 1 start at 35% = 176mC
Deliver treatment

Seizure
Produced

Yes

Session complete
ST=35% (176mC)

Increase Dose to 55% = 277mC
next day maintain this dose unless
factors change *(see chart)

Seizure
Produced

Yes

Session complete
ST=55% (277mC)

Increase Dose to 85% = 428mC
next day maintain this dose unless
factors change *(see chart)

No

Increase Dose
to 55% = 277mC

Seizure
Produced

Yes

Session complete
ST=75% (378mC)

Increase Dose to 120% = 605mC
next day maintain this dose
unless factors change *(see chart)

No

Increase Dose
to 75% = 378mC

Seizure
Produced

Yes

Abandon
Session

Check machine and electrodes
begin at
95% = 479mC next day
and titrate up
Summary of Stimulus Dosing Protocol

Day 1
1st Stimulus 10% = 50mC
2nd Stimulus 15% = 76mC
3rd Stimulus 25% = 126mC

Day 2
1st Stimulus 35% = 176mC
2nd Stimulus 55% = 277mC
3rd Stimulus 75% = 378mC

Stimulus dosing Factors Changing

*Increase dose if no clinical improvement after 4 ECT treatments
*Consider dose increase if seizure shortens to 50% of the original
*Consider dose increase if seizures less than 15 secs either motor or EEG

Key
ST – Seizure Threshold
Chart 6 – Flowchart for Unilateral ECT: Measuring Seizure Threshold

<table>
<thead>
<tr>
<th>ECT day no.</th>
<th>Stimulus number</th>
<th>Level</th>
<th>THYMATRON IV</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>mC   %</td>
</tr>
<tr>
<td>1</td>
<td>1</td>
<td>1</td>
<td>25   5</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>2</td>
<td>50   10</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>3</td>
<td>76   15</td>
</tr>
<tr>
<td>2</td>
<td>1</td>
<td>4</td>
<td>126 25</td>
</tr>
<tr>
<td>if no seizure on first ECT day</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rest of ECT course</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1. Begin at level one.
2. Increase by one level until a seizure is produced.
3. If no seizure after two attempts consider increase by two levels (to level 4) for the third attempt.
4. Once ST determined, increase dose to between 5 and 8 times seizure threshold for subsequent ECTs to determine the ‘treatment’ dose for maximum efficacy and minimum cognitive side-effects.
5. Increase by one more level if seizure length reduces progressively by 50%+
6. Reduce by ½ level if cognitive side-effects troublesome.
7. Consider switching to bilateral ECT if ineffective after 4 ECTs at ‘treatment’ dose
8. Terminate seizures lasting >90 seconds on EEG.

NB: Patients with a ST above 126mC (25%) are unlikely to benefit from unilateral ECT because the ‘treatment’ dose will be above the maximum output for the machine.
Stimulus Dosing and EEG Monitoring – Dr Grace Fergusson (2008), ECT Team Day 4th November 2010, London

* If you wish to give a clinically effective dose on this occasion repeat at 5-8 times ST after approx. 30 secs.

This document is uncontrolled once printed. Please refer to the Trust intranet for the current version.
ECT Treatment Notes

The following notes have been produced with reference to the ECT Handbook (2nd Ed, 2005, and 3rd Ed, 2013) by the Royal College of Psychiatrists (2013), McColl and (2000) and Mayur et al (1999).

The aim is to deliver effective treatment for each patient on each occasion

Bilateral ECT

This involves giving a dose of electricity approximately 50-100% above seizure threshold using a bi-temporal electrode position. Most patients (75%) will have a seizure threshold (ST) below 100mC but there may be considerable variation between individuals so it is best to measure the ST. If there has been no clinical improvement after 4 treatment’s apparently ‘adequate’ ECTs then increase the dose next time by 75-100mC, provided there have been no cognitive side-effects. It is vital to record any post treatment confusion because this is an indication that the dose of electricity has been too high for that particular patient, who may therefore be at increased risk of cognitive side-effects. If cognitive side-effects are troublesome:

i) Reduce dose by 50mC OR

ii) Consider high dose unilateral ECT

Unilateral ECT

ECT is given to the non-dominant hemisphere, usually the right, even in left-handed patients. For left handed people, first measure seizure threshold with right unilateral ECT and if confusion occurs switch to left unilateral ECT next time. Do not increase dose until sure of laterality. The seizure threshold is less than for bilateral ECT. The effective dose of electricity is between 5 – 8 times seizure threshold. Even at high doses the cognitive side-effects are negligible so this is presently the treatment of choice for young people, patients where speed of response is not paramount or those suffering from dementia. Because of reduced cognitive side-effects, measurement of the seizure threshold may be less critical than for bilateral ECT. It may be necessary to change to bilateral ECT if there has been no beneficial effect after 4 x unilateral ECT.

All patients

Both efficacy and side-effects increase with the dose above seizure threshold for any given individual. The seizure length is idiosyncratic and is not itself an indicator of efficacy. However as the course of treatment proceeds it may be necessary to increase the dose of electricity given to take account of the anticonvulsant action of ECT. A progressive shortening of the seizure may give some indication of this. The timing of the visible seizure is taken from the end of stimulation to the end of bilateral seizure activity. The seizure length as determined by the EEG will usually be 10 - 40 % longer than the visible seizure; the relationship between these also tends to be idiosyncratic. This document is uncontrolled once printed. Please refer to the Trust intranet for the current version.
There is good correlation between short EEG seizures and short visible seizures but the converse is not true, up to 6% of patients with a short visible seizure may be experiencing pronged cerebral EEG activity. Such seizure activity should be terminated after 90 seconds.
ECT machines are not directly comparable in terms of effect for a given total charge.
The above procedure will be reviewed in the light of clinical research.

The above Stimulus Dosing Criteria has been reproduced with the kind permission of Dr Grace Fergusson, Clinical Director, Argyll & Bute Hospital, NHS Highland Lochgilphead, Argyll (2008).

**Laterality of Treatment**

**Frequency**

It is recommended that ECT is administered by a constant current, brief pulse ECT machine with a wide output range and a facility for 2 channel EEG recording. The optimal frequency is reported to be twice a week (Freeman, 2013). Studies have shown no advantage to clinical outcomes with treatment given three times a week. In addition there is no robust evidence to support that the giving of ECT daily leads to a more rapid response.

Bi-lateral (B/L) ECT should be used when:
- Speed and completeness of response have a priority
- Previous B/L ECT has produced a good response without undue short term memory impairment
- Unilateral (U/L) ECT has failed

Unilateral (U/L) ECT should be considered when:
- Speed of response is less important
- There has been a previous good response to U/L ECT
- Minimising memory impairment is paramount
- In adolescents
- Patient choice
- B/L ECT shows evidence of cognitive impairment

For electrode placement of B/L or U/L ECT please see instructions and diagrams in CLP 0048. However it is important to note electrode placement may drift too far anterior or posterior. A too low placement will not give a passage of current across the brain, therefore a conscious effort must be made on each occasion to ensure accurate electrode placement.

**Re-stimulation protocol**

When to re-stimulate a patient after a missed or seizure becomes too short during the ECT course:

**Missed seizure**

This document is uncontrolled once printed. Please refer to the Trust intranet for the current version.
This is when there is no evidence of motor or EEG activity after stimulation. There may be several reasons for this including:
Insufficient stimulus intensity
Excess dynamic impedance
Premature stimulus termination
Hypercarbia
Dehydration
The effect of medication (e.g. benzodiazepines, barbiturates, general anaesthetic)

Missed seizure treatment:
Check electrode position; check leads are attached to paddles / electrodes
Re-stimulate at a higher dose after 20 seconds; manual ventilation during this period will help maintain hyperoxia and hypocarbia

Consider:
Decrease in anaesthetic dose
Barbiturates: change to Etomidate, Thiopental
Benzodiazepine reversal
Hyperventilation
Check Urea and Electrolytes (U’s & E’s)
Use of caffeine, Sodium Benzoate / Theophylline

Where re-stimulation is required for missed seizures manual ventilation during the 20 second delay of re-stimulation (to allow for the development of any delayed seizure) will help maintain hyperoxia and hypocarbia. If a third stimulus is required, especially during the first treatment while stimulus energy is being titrated this may necessitate small additional doses of suxamethonium and induction agent particularly if there has been a slow onset or other delay after induction.

For further information regarding the drugs used to modify the autonomic effects of ECT please refer to ECT Handbook (3rd Ed, 2013, p.22) for detailed information.

When a seizure becomes too short during the ECT course

An inadequate seizure is when after stimulation there is little evidence of generalised cerebral seizure activity and/or inadequate tonic/clonic convulsion. Provided the tonic/clonic seizure is B/L and generalised irrespective of length of time, this is felt to be adequate. However brief seizure activity may be the result of a focal (convulsive activity of the muscles of the face can be seen with focal cerebral activity and cannot be relied upon as an indicator of generalised seizure activity) or partial seizure, and therefore be of questionable therapeutic efficacy. Nonetheless literature shows that there are cases where patients recovered with ECT and yet displayed only short tonic clonic convulsions. This may be more likely in elderly patients (The ECT Handbook, 2005, p.161). However the 3rd Edition of The ECT handbook (3rd Ed, 2013) states that if a short seizure of 5 -10 seconds is elicited and there is no clinical response (either because it is too early in the treatment course or the patient has failed to respond because of short seizures) then the patient should be re-stimulated at the next higher level in the treatment dosing protocol to ensure an adequate treatment (The ECT Handbook, 3rd Ed, 2013, p.37). For patients who have shorter seizures later in the treatment course
but are having continuing satisfactory clinical improvement then re-stimulation is not necessary, but the treatment dose could be increased by one level at the next treatment session.

The commonest cause is:
Insufficient stimulus interval
Excess general anaesthetic agents

Abortive / brief seizure treatment:
A gap of 40 – 90 seconds is advisable before re-stimulation to enable central repolarisation.
Seek the advice of the anaesthetist as more anaesthetic may be required.

If the patient has a missed or brief / inadequate seizure then the patient should be re-stimulated at least once or twice (no more than 3 applications altogether) during that same session in order to try and produce an adequate seizure. Positively ventilate with O\textsubscript{2} for 10 – 20 seconds to reduce PCO\textsubscript{2} and maintain PO\textsubscript{2} before re-stimulating. Reapply paddles and re-stimulate according to chart. Where ST is not determined (no adequate seizure at 1\textsuperscript{st} session) continue titration according to ECT stimulus dosing chart. If re-stimulation is required during the continuing treatment phase (after ST has been determined) increase dose by 10% (50\textsuperscript{Mc}).

Over course of ECT, ST may rise (x 25% – 80%) resulting in shortening of seizure duration (x 30-50%), which may necessitate an increase in dose of electricity to continue efficacy of treatment, although clinical response is the most important feature in determining the need for dosage increase.

After the 4\textsuperscript{th} session, if cognitive impairment is apparent, in consultation with the referring Consultant and the ECT Consultant may consider reducing the dose or converting to Unilateral (U/L) ECT. If the clinical response is poor consider increasing the dose, or if U/L converting to B/L ECT.
Routine cognitive assessments and clinical interview may assist in reviewing the ECT plan of care.

**Switching from bilateral to unilateral ECT**

If there is a specific indication to convert from B/L to U/L ECT this should be discussed with the Consultant Psychiatrist responsible for ECT.

**Management of marked seizure shortening**

Refer to ECT stimulus dosing charts 1-6.

**Management of Prolonged / Tardive Seizures and High Seizure Threshold**

A prolonged seizure is defined as bilateral or unilateral seizure activity, detected clinically or on EEG monitoring, lasting longer than two minutes
The management of a prolonged seizure

Prolonged seizures (duration greater than 90 seconds) may be associated with neuronal damage leading to long-term memory impairment if not terminated. The clinic protocol is to terminate prolonged seizures after 90 seconds using an intra-venous (I/V) bolus of Propofol, Diazepam, or Midazolam maintains oxygenation and monitor EEG activity.

The Anaesthetist should be alerted after 60 seconds if seizure activity is continuing. In some patients prolonged EEG activity can occur in the absence of motor activity.

The patient’s airway should be protected and regular pulse and blood pressure monitoring carried out. Blood glucose estimation should be done immediately to rule out hypoglycaemia.

A review of the possible causes of prolonged seizure and further management should also take place post treatment. This is discussed in the Psychiatric Protocol section 9.

It is important to note that a prolonged seizure may be overlooked, with serious consequences, if EEG monitoring is terminated too quickly towards the end of the procedure. Prolonged seizure may not be apparent clinically, and research evidence suggests that a significant proportion of cases would be missed if clinical observation alone was relied upon.

After a prolonged seizure has taken place, the psychiatrist responsible for ECT should, in collaboration with the patient’s RC, review the possible causes and take any appropriate action. If there is no other apparent cause and it is decided that the course of ECT should proceed, then a lower dose should be administered.

Possible causes to be considered

These include:

Wide variation in the dose of Anaesthetic given

Recent change in the patient’s regular drug regimen (E.g. withdrawal of

This document is uncontrolled once printed. Please refer to the Trust intranet for the current version.
Benzodiazepines or anticonvulsants

Error in dose of ECT administered

Hypoglycaemia

Other metabolic or intracranial disorder

If despite appropriate action, a further prolonged seizure occurs, then a similar review should again be carried out, and termination of the course of ECT considered.

The management of a tardive seizure

Tardive seizures are later complications most likely to occur in recovery. Tardive seizures are seizures which occur following termination of the ECT induced seizure and are rare. They are often not accompanied by motor manifestations. In the immediate postictal period they can be picked up by EEG seizure monitoring and respond to short-acting anticonvulsant treatment (e.g. Lorazepam, Diazepam). Non-convulsive Status Epilepticus may also occur in the inter-ictal period, with an abrupt onset of delirium, unresponsiveness, and/or agitation as distinguishing clinical features. EEG is the main diagnostic aid and treatment is by short-acting anticonvulsant treatment (e.g. I/V Lorazepam / Diazepam / Midazolam).

Individuals with very high seizure thresholds

A small group of patients, usually older men, have very high ST and consequently inadequate seizure duration. Potentially anticonvulsant drugs should be considered as an explanation and their reduction or withdrawal may facilitate treatment. Use of pro-convulsant agents such as caffeine may be indicated.

Continuation/Maintenance ECT

The evidence available comprising individual case reports and case series suggests continuation ECT is effective and safe. Evidence from randomized control trials is not available. A small group of patients generally with chronic treatment resistant depression, or who relapse very quickly after a course of ECT can respond to continuation or maintenance ECT.

This document is uncontrolled once printed. Please refer to the Trust intranet for the current version.
There is lack of clarity about the terminology used with regard to continuation and maintenance ECT. In keeping with current practice regarding antidepressant prophylaxis, for the purpose of this protocol the term continuation ECT is used for treatments designed to prevent a relapse of an index episode of treatment.

For the purpose of this protocol the term, maintenance ECT is used for treatments as a prevention of further episodes or recurrence of illness and delivered at intervals of usually between one week and three months.

In May (2003) NICE published the first Technical Appraisal (59) on ECT for depressive illness, schizophrenia, catatonia and mania, and in these guidelines recommended that ‘as the longer term benefits and risks of ECT have not been clearly established, it is not recommended as a maintenance therapy in depressive illness’ (p. 6). In October 2009, the updated NICE Guidelines (CG 90) on the management of depression in adults changed these recommendations (although only with regard to ECT in depression). These guidelines have removed the former advice against continuation and maintenance ECT and have taken a neutral position. However, to maintain good quality patient care the revised Clinical Quality indicator 4 will require completion by the RC and Lead ECT Consultant every 12 treatments.

Continuation ECT should be considered for patients who have a relapsing or refractory depression that has previously responded well to ECT, but for whom standard pharmacological and psychological continuation treatment is ineffective or inappropriate. Such patients might include those:

- Who have had early (0 -6 months) post-ECT relapse not controlled by medication
- With later recurrence (6 -12 months) not controlled by medication
- Who cannot tolerate prophylactic medication
- Who repeatedly relapse because of poor adherence
- Previous good response to ECT
- Other continuation treatments ineffective
- The patient expresses a preference

This document is uncontrolled once printed. Please refer to the Trust intranet for the current version.
Before commencing continuation ECT, a full review of the case should be undertaken in a similar manner to any case of refractory or relapsing depression. Consideration should be given to ensuring the diagnosis is correct, that ECT has proven to be of benefit and that alternative options have been adequately explored. If the patient is currently unwell, discussing continuation ECT should be deferred until they are sufficiently improved to allow a full understanding of the proposed plan (The ECT Handbook, 3rd Ed, 2013, p.199).

Exclusion criteria for continuation ECT are the same as for acute ECT – recent myocardial infarction or cerebrovascular accident, raised intracranial pressure or the presence of an acute respiratory infection. Caution should be used when patients have in the past shown significant post–ECT confusion or who have a depressive illness in the context of a progressive neurodegenerative disorder.

Maintenance ECT is usually reserved for those whose illness recurs after continuation ECT. Either may also be considered for patients who express a preference for it once this has been thoroughly discussed with the RC.

**Responsibilities (of the referring team)**

- If prescribing continuation / maintenance ECT the following protocol should be adhered to:
  - The RC should record in the patients notes the reasons for proposing maintenance ECT as opposed to alternative treatments
  - The decision should be discussed fully with the patient and their family or carers
  - An informal second opinion should be sought if the patient is not detained under the MHA
  - The decision to recommend maintenance ECT should be discussed with the ECT Consultant
  - The risks and benefits of maintenance ECT should be recorded in the patient’s notes
  - A statement of capacity should be recorded prior to commencement
  - A consent form stipulating the number of treatments should be completed. The maximum being 12 or the maximum treatments needed over a 6 month period (whichever is lower)
  - Consent should be renewed after 12 treatments or 6 months – whichever is sooner. A further statement of capacity and second opinion should be sought at this time and recorded

This document is uncontrolled once printed. Please refer to the Trust intranet for the current version.
Patients should undergo the usual clinical investigations before ECT commences including a full physical workout.

Baseline standardised assessment of illness severity should also be undertaken (e.g. HDRS / QIDS, MOCA and CGI.)

Clinical progress, cognitive functioning and side effects should all be assessed at regular intervals.

Advocacy involvement where required.

Before starting continuation ECT, consideration should be given to the intended length of the course. The team should also agree on which symptoms would indicate deterioration in the mental state such that relapse would seem likely. This information can be used in determining frequency of treatment. Once completed the plan should be clearly and explicitly documented on Systm One by the RC. A full discussion with the patient and family must be conducted to address treatment purpose, benefits and adverse effects, and the details of this similarly documented on Systm One.

Maintenance ECT should be discontinued at the earliest opportunity when the patient has recovered sufficiently and is stable or when the side effects of ECT outweigh the benefits.

It would seem wise to seek a second opinion about maintenance ECT from a Consultant colleague; this would normally be the Lead ECT Consultant. In complex cases both the referring and ECT team may access external expert opinion for case review and advice.

**Criteria for continuation/maintenance ECT**

The treatment usually starts at a once weekly interval and should be prolonged over time to 4-week intervals to 3-month intervals. Consideration should be given to reviewing the indication for ECT, physical health status and consent at regular intervals during the course of maintenance ECT. Although there is no evidence that even prolonged courses of ECT result in brain damage it seems sensible to monitor subjective and objective evidence of memory and intellectual function, especially in the elderly.

A stimulus dosing paradigm should be employed with the goal of inducing a seizure between 20 and 50 seconds in length (The ECT handbook, 3rd Ed, 2013, p.200). During longer courses of ECT, seizure threshold may rise, so a slight increase in dose may be required. However, research suggests that clinical response is a more important indicator of efficacy than seizure duration and shorter seizures.

This document is uncontrolled once printed. Please refer to the Trust intranet for the current version.
can be acceptable if the patient remains well. Once clinical recovery has occurred following a course of ECT, the goal with maintenance ECT should be to reduce the frequency of ECT to the minimum required to maintain an effective clinical response. This will be influenced by physical and psychological factors in each individual, so a rigid structure to treatment is inappropriate.

However The ECT Handbook (3rd Ed, 2013) suggests the following as a template for continuation / maintenance ECT:

- Give as acute ECT until a clinical response is achieved
- Reduce to weekly
- Reduce to every 10 days
- Reduce to every 2 weeks
- Reduce to every 3 weeks
- Reduce to monthly
- Less frequently than monthly in certain cases

For patients who are not commencing continuation ECT immediately after acute ECT, it may be possible to begin at a lower frequency of about every 2 weeks. Since ECT is being used as prophylaxis, it may be possible to reduce or withdraw psychotropics completely; although given the severity of illness in patients on continuation ECT a ‘pure’ ECT prophylaxis is often not achieved. Objective information will be needed from the patient, family and community staff and feedback from carers, either formal or informal is essential. Deterioration in mental state that suggests the return of a depressive disorder at any treatment frequency should result in a return to the previous level until improvement is re-established. Before each change in the frequency of ECT a full review should take place by the RC and the plan of carefully documented. Administration of treatments less frequently than monthly may be possible in certain cases (The ECT handbook, 3rd Ed, 2013, p.196-203).

**Ongoing Reviews during course of Continuation/Maintenance ECT**

Full Anaesthetic review every 6 months or after 12 treatments whichever is sooner (with laboratory tests as appropriate). The Anaesthetist will lead on this.

This document is uncontrolled once printed. Please refer to the Trust intranet for the current version.
On-going Psychometric testing: routine monthly cognitive assessment should be done as a rough guide to cognitive performance and particular attention should be given to subjective cognitive problems

A battery of psychometric testing annually by the Community Brain Injury Team (CBI)

Informal verbal confirmation of agreement to ECT should be sought before each treatment and the patient asked to sign that they are agreeing to the treatment and be countersigned by the ECT nurse

Repeat written consent after every 6 months or after 12 treatments whichever is sooner

Reduction in the frequency of ECT should continue until a stable state is reached, where there is a maximum space between treatments without return of symptoms. Allowing for variation, monthly is an appropriate goal. Since relapse of major depression is most likely within the first 12 months of recovery, it is wise to employ continuation ECT for at least 1 year after recovery with reviews as mentioned earlier.

If the continuation ECT was commenced to prevent relapse it is reasonable to consider terminating the course at this stage. With maintenance ECT however, the goal is to prevent further episodes, suggesting the maintenance ECT might continue longer or even indefinitely. Even so, a full review annually must be considered advisable with reaffirmation of consent every 12 treatments or every 6 months whichever is sooner.

There is currently no way of predicting how likely relapse or recurrence is following withdrawal of continuation ECT. Clinical predictors will be idiosyncratic to the individual patient, hence the need for documenting of each patient's particular symptoms initially. Close clinical supervision is advised after a course of continuation ECT, and that the return of symptoms would indicate consideration of maintenance ECT.

Monitoring and follow up

Monitoring of treatment response to ECT between treatment sessions

It is necessary for the referring team to assess all patients undergoing a course of ECT treatment between treatment sessions. This must be documented on SystmOne and this includes:

This document is uncontrolled once printed. Please refer to the Trust intranet for the current version.
The patient’s clinical status / symptomatic response is assessed and recorded at baseline, between each treatment session, and following the course of ECT, using the Clinical Global Impression (CGI) Scale.

The patient’s clinical response is monitored and recorded using a validated depression rating scale at least weekly between treatment sessions for patient receiving an acute course of ECT, or between each session for patients receiving maintenance.

The patient’s orientation, memory and cognitive side effects is assessed before and after the first ECT and reassessed at intervals throughout the treatment course, using tools such as the QIDS, MOCA or similar and this is recorded.

The patient’s clinical status / symptomatic response is assessed and recorded between each treatment session. The patient’s orientation is assessed and recorded between treatment sessions.

The patient’s memory and cognitive functioning is assessed.

The patient is interviewed to determine the extent of retrograde and anterograde amnesia.

Non-cognitive side effects are assessed and recorded.

The patient’s subjective experience of treatment side effects and objective cognitive side effects are recorded between treatment sessions.

Deciding the laterality and duration of treatment.

Monitoring mental state.

Monitoring cognitive and other side effects of the treatment.

The clinical response between each treatment.

Monitoring longer term after the treatment has been completed.

Issues of non-compliance with assessment and monitoring are addressed with the referring team on each occasion. Sustained non-compliance issues are addressing through risk assessments.

Patients and carers are offered the opportunity and encouraged to report and discuss any concerns regarding their ECT treatment plan.

Cognitive tests used before and after treatments include the QIDS, ACER, AMI (short form), HDRS or GDS.

This document is uncontrolled once printed. Please refer to the Trust intranet for the current version.
Follow-up arrangements

On-going monitoring

Post ECT monitoring of depressive symptoms and cognitive state will be carried out to assess the patient:

Subjective questioning in a clinical interview by the referring team 3 to 4 working days after a treatment course and 1/2 months follow up

The patient will be reviewed by the RC at least once a month for 3 months following an acute course of ECT

Cognitive testing will be i) 3–4 days post-ECT course; ii) 1-2 months follow up. The patient’s cognitive side effect / memory are assessed using the MOCA, QIDS, HDRS, and subjective questioning in a clinical interview. These assessments will be documented on SystmOne

Patients and carers are offered the opportunity to formally feedback on the experiences of care and treatment. This is in the form of a patient questionnaire which is given to the patient and carer at the end of treatment. Also at the clinical interview by the RC 3 to 4 days post-ECT

Adequate psychiatric follow up should be in place for on-going assessment of patient’s mental state with a view to early recognition of any relapse of depressive symptoms or switch to manic symptoms.

Overview - Decision to discontinue ECT

The prescribing and discontinuation of ECT is the decision of the patient’s RC and should be based on documented clinical improvement as confirmed by the Hamilton Rating Scale for Depression (HDRS) and clinical opinion / judgement. However, the decision to discontinue ECT may also take place in the context of discussion with the ECT Consultant and / or Anaesthetist in the light of adverse reactions to ECT such as cognitive problems or anaesthetic problems.

Discontinuation may also take place because of poor efficacy or, most importantly, because the patient has withdrawn consent.
The clinical status of a patient should always be assessed between each ECT session and treatment should be stopped when a response has been achieved.

A patient should not receive more treatments than is required to achieve an adequate response, even if more have been prescribed, or authorised by a SOAD hence the patient must be reviewed after each treatment during the treatment course.

**Recommendations (from ECT Handbook, 3rd Ed, 2013)**

A set course of treatments should not be prescribed – the need for further treatments should be assessed after each individual treatment.

**Bi-lateral ECT**

If no clinical improvement at all is seen after 6 properly – given (therapeutic) bi-lateral treatments, then the course should be reviewed. If patients are failing to respond or are responding slowly ECT teams should liaise with the RC regarding ECT dose, medications, side effects, induction agent and any other reasons for modifying or stopping the treatment course. A patient who has had no response within 12 treatments is unlikely to have a sustained response to ECT.

**Unilateral ECT**

For patients who do not respond to unilateral ECT, consideration should be given to switching to bi-lateral treatment. It will be necessary to re-titrate seizure threshold in this case.

**Patients medication during and after treatment**

**During course of ECT**

Careful consideration should be given to the appropriateness of prescribing potentially cardio-toxic antidepressant or antipsychotic drugs during a course of ECT. Medication will be reviewed throughout the treatment course and any changes must be communicated to the ECT Team.

This document is uncontrolled once printed. Please refer to the Trust intranet for the current version.
**After course of ECT**

It is recognised from the available evidence that in cases where ECT mono therapy for depression is used, this results in a 50% relapse rate within 3 months of discontinuation. It is therefore clear that the improvements produced by ECT will usually need to be maintained with antidepressant medication over an extended period of time.

If psychotic symptoms were present, consideration should be given to treatment with a combination of antidepressant and antipsychotic medication. The antipsychotic should be continued over a short-term period following resolution of the psychotic symptoms with a view to gradual reduction and withdrawal.

In cases of relapsing course of Unipolar or Bipolar Affective Disorder, consider the addition of Lithium Carbonate or mood stabiliser of anticonvulsant type; or the use of atypical antipsychotic with demonstrable mood stabilising effects.

**Special Precautions / Populations**

Wherever practical, ECT is administered to patients in a clinic close to a base hospital with an identifiable critical care facility. Provision is made to treat high risk patients (e.g. ASA grade 3 or above in an environment allowing rapid intervention should complications occur, for example, a theatre suite or its recovery area). These patients would include, but not be limited to, those with a high medical risk, need for gaseous induction and anticipated difficulty with mask ventilation. In these cases ECT would be administered at Northampton General Hospital.

Special arrangements are made when patients are given ECT in a clinic remote from a base hospital (e.g. patients have an individual trained nurse escort and commuting patients are treated at the beginning of the session to allow maximum time for recovery). Please also refer to Section 6.6 for psychiatric risks and remote sites.
ECT and the Elderly

Age is not a contraindication for ECT. A number of studies over the years have found that increasing age predicts a favourable treatment response. Benbow (2008) has concluded that elderly people respond at least as well to ECT as younger people. Nevertheless, when ECT is to be prescribed for an elderly person some age related factors need consideration.

Physical illness may co-exist in elderly patients referred for ECT and will need careful assessment prior to treatment. Cardiovascular disease is a particular concern and this group of patients is at increased risk of developing complications during treatment.

Some older patients are more likely to have memory difficulties and acute confusion during ECT. Careful repeated assessment of cognitive function and response to treatment will therefore be important as the course of treatment proceeds. A standardised instrument (i.e. QIDS, MOCA) for monitoring cognitive function is useful. Attention will need to be paid to measures, which minimise the adverse cognitive effects of the treatment, such as electrode placement, treatment frequency, stimulus intensity and concurrent medication.

Since ST may rise with increasing age close attention will need to be given to factors which may affect ST, such as concurrent drug treatments, dose of Anaesthetic drugs and adequate ventilation. Seizure augmenting may need consideration if the duration of seizures remains short despite minimising any contributory factors, unless clinical improvement is satisfactory.


Please exercise caution when providing ECT to elderly patients. 
https://www.nice.org.uk/guidance/ta59/chapter/1-Guidance

Recommendations

Treatment is not contraindicated by age alone

Special care with concomitant medication and with the physical assessment of patients prior to ECT

The ST may be relatively high in some elderly patients and these patients may require a relatively high stimulus charge

Special precautions (i.e. unilateral non-dominant ECT rather than bilateral may reduce cognitive blunting and post seizure confusion) so to guard against memory impairment or confusion, longer gaps between each treatment may also be beneficial.

This document is uncontrolled once printed. Please refer to the Trust intranet for the current version.
Bilateral ECT remains the treatment of choice for elderly patients. If cognitive side effects occurred during a previous course of ECT, or become apparent during the current course, the use of unilateral ECT at a dose significantly exceeding the seizure threshold should be considered. As ST tends to increase with age especially in males, this is taken into account in the stimulus dosing protocol.

The Anaesthetist will decide the choice of anaesthetic agent in consultation with the ECT Consultant. However as there is an increased likelihood of high seizure thresholds among elderly people; the anaesthetist needs to take this and other age related factors into account in the choice of anaesthetic agent. The seizure-shortening effect of Propofol and its effect on seizure threshold will need to be taken into account in the choice of an anaesthetic agent.

Medical and nursing staff should closely monitor older people who are receiving ECT from an physical and psychiatric perspective. Staff in these circumstances will need to advocate on behalf of the patient/carers.

**Special provision for the treatment of young people under the age of 18**

The use of ECT in adolescence remains controversial (Scott, 2013). Furthermore ECT is rarely used as a treatment in adolescence however there is a general consensus that ECT is an effective treatment for some mental disorders in adolescents and that the indications, response and unwanted side effects are similar to those observed in adults (Scott, 2013). ECT sessions for people under 18 are held separately from sessions involving adults.

At the start of treatment course, the young person’s seizure threshold is determined as usual and the initial stimulus given to adolescents and children is at the bottom end of the range. The Thymatron System IV is able to give flexible doses, including very low stimuli.

Considerations include the following:

If a Child and Adolescent Psychiatrist wishes to consider ECT for an adolescent it should be after all other available options have been considered

ECT will only be offered to adolescents following an extensive discussion between the referring Child and Adolescent Psychiatrist, the Lead ECT Consultant and the ECT team and should aim to ensure that ECT is absolutely necessary and this should be documented in SystmOne

This document is uncontrolled once printed. Please refer to the Trust intranet for the current version.
The referring Child and Adolescent Psychiatrist will be responsible for setting a written detailed care plan. This will include a thorough assessment of the adolescent’s capacity to consent and will follow all other principals and procedures relating to the consent of adolescents.

The decision for ECT should be made with the involvement of the patient’s family where applicable, carer and the multidisciplinary team. Written information regarding ECT should also be provided to the patient and their family / carer.

A second opinion must be sought when deciding on ECT for adolescents. This should involve a second child and adolescent specialist and SOAD.

The adolescent will need to be assessed and prepared for the treatment following Trust ECT guidelines.

Treatment will be given separately from adults.

The adolescent should be accompanied by a qualified member of staff who has a good rapport with the patient.

Treatment of adolescents will only be carried out under the supervision of the ECT Lead Consultant or delegated competent Consultant Psychiatrist and the lead or deputy ECT nurse.

The prescribing doctor and the ECT team should be aware of the low seizure threshold in adolescents. It would be advisable to start with right unilateral ECT. The starting dose should be 5% (25mC) to determine Seizure Threshold (ST) then increase in increments of 5%. Most adolescents will have a ST of 15% (76mC) or less. Treatment dose should be at 3 - 4 times ST. Dose should be adjusted as per adults by monitoring for side effects and clinical improvement.

There is a higher risk of prolonged fits in adolescents and ECT Trust guidelines should be followed if this occurs.

All staff should be aware of any special needs (e.g. language difficulties, deafness). An appropriate care plan to facilitate any special needs must be documented in the ECT care plan.

**Management of Medical Emergencies**

Serious medical emergencies occurring during ECT are rare. Any patient suffering a serious medical emergency during their ECT treatment should be transferred to the nearest acute medical hospital as soon as possible for ongoing management of their condition. Follow guidance in CLP002 - Resuscitation & Related Medical Emergencies Policy. For malignant hyperthermia follow https://www.aagbi.org/publications/publications-guidelines/M/R

Resuscitation Council (UK) (2015)

This document is uncontrolled once printed. Please refer to the Trust intranet for the current version.
Supplementary Operational Information

Anti – Discriminatory Practice and Culturally Sensitive Care

The multi-disciplinary team (MDT) at the Treatment Centre understand that Northamptonshire has a richly diverse population. The service aims to work in a non – discriminatory way by accepting an individual understanding of their own issues. This involves acknowledging a person’s culture and life experiences, taking into account race, religion, gender, disability, sexuality and social class. In this respect, Service users will be assisted in accessing specific services relevant to them and their individual need. We also acknowledge the stigma and discrimination that people with Mental Health problems may face from the public and mental health workers.

Philosophy

We believe that the professional MDT’s practice is holistic and that caring is an essential component, which should be centred in the needs of the patient. Caring requires personal, social, moral and spiritual engagement of the MDT’s.

Each service user is a unique human being who has dignity, worth and the right to quality MDT care delivered with competence and compassion.

The standard of the MDT care should be unaffected by the patient’s race, culture, religious belief, age or sexual orientation.

Through working as part of a MDT optimum care is provided within a safe, private and comfortable therapeutic setting.
Service user’s rights are safeguarded and respected by adhering to the Mental Health Act (1983 / 2007 amendments), The Code of Practice (2008) and The Mental Capacity Act (2005). Professional standards are upheld by each individual member of the MDT.

In order to provide a high quality of MDT care it is recognised that there is a professional responsibility to maintain personal and professional development and a need to pursue professional growth opportunities in order to facilitate and promote evidence based care.

Principles of Care

The Treatment Centre aims to provide a stimulating and therapeutic environment for service users, staff and visitors. The following principles have been identified as pivotal:

- That the service within NHFT provides a safe and therapeutic environment.
- The service provides a comprehensive multi-disciplinary assessment and develops individual plans of care.
- To provide support to enable service users to remain in their own homes and prevent relapse.
- The service aims to work in partnership with service users and encourage them, where possible, to take an active part in the decision making process regarding the care and treatment they receive.
- The service recognises the important role of carers and provides them with support and information, thus promoting the optimum mental health of the service user and carer.
- The service will engage and work within the service user support system when conducting assessments and providing ongoing care.
- The service comprises of staff members from a variety of professional backgrounds, each possessing specific knowledge and expertise. The professionals share such knowledge and expertise to enable a safe, coherent and comprehensive service.

The Treatment Centre

This document is uncontrolled once printed. Please refer to the Trust intranet for the current version.
The Treatment Centre is part of the services offered within Berrywood Hospital. The Treatment Centre provide a MDT comprehensive assessment, investigation and treatment leading to subsequent appropriate discharge and follow up either in the community or / and as an outpatient.

**Treatment Criteria and Definition of the Service User Group**

A large percentage of service users will be treated informally. However, in some cases it may be necessary to treat a person under a section of the Mental Health Act (1983 / 2007 amendments) or the Mental Capacity Act (2005). In every circumstance the requirements identified within the Acts will be adhered to at all times, with particular reference to the Code of Practice (DOH, 2008).

The Treatment Centre will provide a service for people in Northamptonshire who are:

- An adult off any age.
- In extenuating circumstances 16 – 18 year olds may be accepted for treatment.
- Experiencing an acute mental health problem/crisis.
- Experiencing severe depression / mania / agitated depression.
- Catatonia.
- Service user or day patient within NHFT, St Andrews Hospital or Milton Keynes PCT.

With regard to ECT service users will be screened prior to treatment to ensure suitability, a service user with a BMI of above 35 / or below 18 or with an ASA grade of 3 or above with be treated at Northampton General Hospital (NGH) this will be dependent on the assessment carried out by the Anaesthetist.

**Rostering**

The MDT recognises the need to ‘Improve Working Lives’ of its staff and works towards a team-based flexible working pattern. However the provision of an effective service demands that the service is covered adequately on a day to day basis, this restricts the request for evening or night
work. Flexible hours of work during day time hours (7am – 6pm) is always given due consideration and where possible accommodated.

**Service user / Carer involvement**

The Treatment Centre MDT acknowledges that constructive dialogue with service users and carers is integral to the success of the team.

The MDT’s will actively develop links with relevant parties and encourage feedback and advice from service users and carers to ensure continuing good practice. Service users, relatives and carers forums regularly take place and participation encouraged by the CPA co-ordinator. Information leaflets are provided prior to treatment with useful information about the service, which includes relevant contact numbers.

Patient Advice and Liaison Service (PALS) – Focuses on improving Services to NHS service users. It provides advice and support for service users, their families and carers.

**Advocacy**

Individual nurses / escorts and other professionals working within the Treatment Centre will endeavour to act as the service users advocate at all times.

The Treatment Centre has access to User Support Services who can provide a free, independent and confidential advocacy service to all. They also provide an Independent Mental Capacity Advocate (IMCA) for patients who have no family or friend to support them, if they lack capacity.

Advocates do not make decisions for their service users or try to tell people what they should do; they will listen and offer support in whatever way is appropriate.

Age Concern also provides help and support, information on a person’s rights within the system, links to local services, self-help and user groups.
**Provision of single sex facilities**

Every service user has the right to receive high quality care that is safe, effective and respects their privacy and dignity. The Treatment Centre within NHFT is committed to providing every service user with same sex accommodation, because it helps to safeguard their privacy and dignity when they are often at their most vulnerable.

The Department of Health (DOH) has given a clear public commitment to eliminating mixed-sex accommodation for hospital inpatients, however there are exceptions. Sharing with members of the opposite sex will happen by exception at the Treatment Centre based on clinical need (E.g. where service users need specialist equipment and monitoring in the recovery area following anaesthesia).

Same sex-accommodation at the Treatment Centre also means:

- The toilet facilities will be solely for your gender.
- At Berrywood Hospital single sex toilet facilities are provided within the reception area and at the Watermill resource centre on the same corridor as the Treatment Centre there is a disabled toilet. A single disabled toilet is also available within the Treatment Centre.

An exception to this is if you need help to use the toilet (e.g. you need a hoist or are a wheelchair user) then you may be taken to a “unisex” bathroom used by both men and women, but a member of staff will be with you, and other service users will not be in the bathroom at the same time.

It is possible that there will be both men and women service users within the Treatment Centre and you may share some communal space, such as the waiting room and end recovery room. An alternative single sex waiting room will be made available on request at the Treatment Centre. However it is very likely that you will see both male and female service users as you move around the hospital or main reception areas.

It is almost certain that both male and female nurses, doctors and other staff will attend to you during your time at the Treatment Centre. However if a request is made to be treated by a same sex staff member, every effort will be made to accommodate this request.

To measure success NHFT NHS Treatment Centre will continue to monitor service user satisfaction regarding mixed sex accommodation through patient questionnaires, local surveys, service user engagement and feedback.

**Communication**

- Daily review of workload – This occurs at the beginning and end of each working day and work is shared and disseminated as appropriate.

This document is uncontrolled once printed. Please refer to the Trust intranet for the current version.
• ECT handover – This occurs twice a week with the MDT immediately prior to each ECT session and allows for discussion on all current service users. The order of this is determined by specific need, the complex needs of service users are prioritised; for example, diabetics are treated as near to the top of the list as is feasibly possible.

• Multi-disciplinary Review – Regarding ECT this takes place on at least a weekly basis by the Consultant Psychiatrist from referring team or if this is not possible due to sickness or other leave, by the appointed covering RC to evaluate the effectiveness of the treatment and whether more treatment is required.

• Ongoing Audit – A yearly rolling audit of the Hamilton Rating Scales for Depression (HDRS) and Clinical Global Impression Scales (CGI) is undertaken by the ECT nursing team. The results are relayed to the Trust Audit Committee, ECTAS and the MDT, in particular the Lead ECT Consultant to ensure that National targets for effectiveness are achieved. Results are also brought to the attention of senior management on an on-going basis.

• Audits are undertaken consecutively (e.g. patient questionnaire, stimulus dosing, best practice and others as the need demands.

• Improvements / achievement of best practice – This is achieved regionally through the belonging to a Special Interest Group (SIG) for nurses. The National Association for Lead ECT Nurse (NALNECT) cascade information and recent developments in practice to the regional SIG groups.

• ECTAS standards (2019) and the National ECTAS forum. Global awareness of best practice is also achieved through global links with which the nursing team are involved (global telephone conferencing / e-mail).

The following communications also take place within the Directorate:

• Clinical Governance – is addressed through the team briefing structure to discuss issues pertaining to clinical risk, audit, staff development and other quality issues.

• Relatives / carers support - All relatives / carers of service users within the In-patient service are encouraged to attend support groups and we work closely with our voluntary partners.

• Core Briefing – Disseminated information from senior levels within the Trust to ward level. Received monthly.

• Team and countywide Meetings.

• E-brief Newsletter produced regularly with articles of interest and available on all wards.

• ECTAS update yearly through revised standards and report.

This document is uncontrolled once printed. Please refer to the Trust intranet for the current version.
- Ongoing through ECTAS National e-forum.

**Risk Management**

The Treatment Centre will conform to the existing and developing policies governing the safe and effective practice of mental health services.

All service users will have a risk assessment completed by the referring team. Any untoward incidents or near misses will be recorded on Datix, the electronic reporting system. The Trust policy will be adhered to including the completion of a 24 hour report and escalation to the appropriate line manager.

It is the responsibility of every member of staff to uphold health and safety issues and report accordingly.

NHFT is committed to caring for the health and safety of its staff. It also has a legal responsibility to provide a safe and secure working environment, including the management of work related violent incidents. In this context, the Trust has a Zero Tolerance Policy towards violence against its staff.

**Medication**

The pharmacy is accessible and will supply the unit with all the service users’ pharmaceutical needs:

- The ECT nursing staff and / or the ODP will check stock medication and ensure there are sufficient supplies available.
- Arrange for the collection of stock plus additional items by the ECT nursing staff.
- Emergency requests.

**Smoking**

The Treatment Centre within NHFT operates a no smoking policy; however, there is a designated area should service users request to smoke.

This document is uncontrolled once printed. Please refer to the Trust intranet for the current version.
Complaints and grievances

The Trust policy states that all complaints are dealt with at the lowest level possible. Service users will be supported to express their dissatisfaction and to follow the Trust’s complaints procedure. All unresolved complaints need to be forwarded to the Complaints Manager. An investigation will then be commissioned.

Trust leaflets explaining this process are available on the leaflet information stand.

Similarly, staff will be supported to follow grievance procedures where they feel they have an appropriate complaint to make within the Service.

Hotel services

Catering

Food provision for the Treatment Centre will be provided by the catering department on the site. Any discrepancies regarding food deliveries will be reported to the nurse in charge and the catering office.

Domestic

Staff are allocated to the unit as agreed with the contract specification to carry out an agreed range of duties. Domestic supervisors ensure that as far is reasonable, staffing levels, quality of performance, hygiene regulations and disciplinary codes are maintained and adhered to. The Treatment Centre manager has responsibility to ensure that reasonable standards are maintained.

Portering

This Service is provided for all areas and departments and used by staff whenever necessary. It is essential that all deliveries received are checked and any discrepancies reported immediately.
**Maintenance**

The external and internal decoration and maintenance will be undertaken by the Kiers at the Berrywood site. Specific contractors will be utilised as required. It is the duty of all to report any repairs needed as soon as possible.

**Chaplaincy, spiritual care and carer’s assessments**

The MDT will establish any faith, belief or religious needs of the service user and accommodate this need as far as is reasonably possible. The MDT will also assess and address any required carers assessments.

The Treatment Centre within NHFT will endeavour to access on behalf of the service user and at their request, their choice of religious/faith/spiritual representative. There is access to a spiritual advisor / chaplain at Berrywood Hospital for advice on all religious / spiritual matters.

**Service monitoring and review**

The Treatment Centre is committed to the provision of robust evidence-based practice under the umbrella of clinical governance. User satisfaction surveys are used to gain feedback to develop the service in line with service user needs and wants. This will be unified in the countywide service and individual areas will facilitate the process. The overall service will meet at least twice a year to share good practice, service training needs and for networking purposes.

The Treatment Centre are members of the ECT Accreditation Service (ECTAS 2019) and will be externally peer reviewed in line with the Royal College of Psychiatry’s standards. The external review consists of audits, questionnaires from both users and referring Consultant Psychiatrists. A visit from an external team will include a site visit, an examination of patient notes, a close inspection of all documentation and questions to each member of the MDT. This is a rigorous external review and demands copious amounts of preparation. The external review is undertaken every 3 years.

In the interim period a self-review audit is required. This comprises an environmental audit, an audit of patient notes and questionnaires. The internal self-review is undertaken every 18 months. This document is uncontrolled once printed. Please refer to the Trust intranet for the current version.
In addition to this it is expected that each individual clinic undertakes local audits pertaining to effectiveness, patient satisfaction, practice development and if possible participates in research or innovative practice.

The information in this document is not intended as a definitive treatment strategy, but as a suggested approach for clinicians. It is based on previous successful experience. Each case should, of course, be considered individually.
Equality considerations

The Trust has a duty under the Equality Act and the Public Sector Equality Duty to assess the impact of Protocol changes for different groups within the community. In particular, the Trust is required to assess the impact (both positive and negative) for a number of ‘protected characteristics’ including:

Age;
Disability;
Gender reassignment;
Marriage and civil partnership;
Race;
Religion or belief;
Sexual orientation;
Pregnancy and maternity; and

Other excluded groups and/or those with multiple and social deprivation (for example carers, transient communities, ex-offenders, asylum seekers, sex-workers and homeless people).

The author has considered the impact on these groups of the adoption of this Protocol insert here the impact and actions to address this

Reference Guide


This document is uncontrolled once printed. Please refer to the Trust intranet for the current version.


Clozaril patient monitoring service (2015) [online] https://www.clozaril.co.uk/ [Accessed 13.05.19.]


Department of Health (1983) Mental Health Act. [online] 

Department of Health (2005) Mental Capacity Act. [online] 


ECT Accreditation Service(2019) Standards for the administration of ECT (14th Ed) [online] 

Available at: https://www.rcpsych.ac.uk/improving-care/ccqi/quality-networks-

This document is uncontrolled once printed. Please refer to the Trust intranet for the current version.


Fergusson, G. Clinical Director, Argyll & Bute Hospital, NHS Highland Lochgilphead, Argyll (2008).


This document is uncontrolled once printed. Please refer to the Trust intranet for the current version.


NGH Day Surgery Anaesthetic Guidelines (NGH, 2015)


NGH Day Surgery Anaesthetic Guidelines (NGH, 2015)

NHFT (2013) Introduction to Electroconvulsive Therapy. NHFT.


This document is uncontrolled once printed. Please refer to the Trust intranet for the current version.


This document is uncontrolled once printed. Please refer to the Trust intranet for the current version.
Appendix 1 Pathways to Consent

Pathways to ECT – Informal patients

This flowchart is based on the assumption that the approved clinician of the patient’s care has decided that ECT is the most appropriate treatment for the patient in question, and that they are over 18 years of age.

1. Patient has capacity
   - Consent 
     - AC completes Trust consent form
     - You cannot administer ECT
     - Assess under MHA. See appropriate pathway for detained patient
     - If patient regains capacity then appropriate pathway must be followed
     - Treat

2. Patient lacks capacity
   - Non Consenting
     - No Advance decision refusing ECT.
     - No authorised attorney objecting to ECT
     - No decision from the Court of Protection preventing ECT
     - Valid and applicable Advance decision refusing ECT.
     - Authorised attorney objecting to ECT
     - Decision from the Court of Protection preventing ECT
     - Is patient resistive?
       - Treat
     - Is patient passively accepting?
       - Treat using D.o.H. Form 4. Capacity must now be assessed prior to each treatment
       - You cannot administer ECT

Under 18 years of age

- If informal, lacking capacity but passively accepting of treatment contact CQC for a SOAD to assess and if considered appropriate to complete Form T6
Pathways to ECT

Forms to use

<table>
<thead>
<tr>
<th>Form T4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Certifies an adult patient’s consent to ECT, and will usually be completed by the AC in charge of the treatment, although (as with form 38 prior to the revision of the act) SOADS may on occasion wish to make such certification</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Form T5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Is used by the SOAD to certify ECT in the case of any patient under 18 years gives valid and that ECT is appropriate.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Form T6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Is used by the SOAD to certify ECT in the case of any patient who lacks capacity to give or withhold consent (whether or not that patient has attained the age of 18 years)</td>
</tr>
</tbody>
</table>

In an emergency (ie if it is immediately necessary to save life or prevent a serious deterioration of the patient’s condition.

Section 62 – The Trust has a specific form for ECT

This document is uncontrolled once printed. Please refer to the Trust intranet for the current version.
Pathways to ECT – Detained patients

This flow chart is based on the assumption that the approved clinician in charge of the patient’s care has decided that ECT is the most appropriate treatment for the patient in question, and that they are over 18 years of age.

Patient has capacity.

- Consent ing
- AC completes Form T4
- TREAT

Patient lacks capacity

- Non Consenting
  - YOU CANNOT ADMINISTER ECT except under S62 and only in the absence of an advance decision
  - TREAT
  - Valid & applicable Advance Decision refusing ECT.
  - No authorised attorney objecting to ECT
  - No decision from the Court of Protection preventing ECT

- Patient lacks capacity
  - Valid & applicable Advance Decision refusing ECT.
  - Authorised attorney objecting to ECT.
  - Decision of court of protection preventing ECT.
  - SEEK ADVICE
    - YOU CANNOT ADMINISTER ECT UNLESS S62a&b apply.

Under 18 Years of Age

If detained, under 18 with capacity and consenting contact must be made with CQC for a SOAD to assess and if considered appropriate must complete Form T5

If detained, under 18 and lacks capacity to consent contact must be made with CQC for a SOAD to assess and if considered appropriate must complete Form T6

Key

- CQC – Care Quality Commission
- SOAD – Second Opinion Appointed Doctor.
- AC – Approved Clinician in charge of patients care
Appendix 2 - Anaesthetic Protocol for ECT including ASA Grade

Ref:  http://www.asahq.org/clinical/physicalstatus.htm

Appendix 3 - CLOZARIL and GENERAL ANAESTHESIA

In view of the CNS effects of Clozaril® (clozapine), caution is advised in patients being treated with this drug who are also being administered general anaesthesia.

The anaesthetist should be informed that the patient is receiving Clozaril, and the anaesthetic protocol should be similar to that used in patients on other major tranquillisers such as haloperidol. Like many antipsychotics, Clozaril can lower the seizure threshold in some individuals, and it may be wise not to administer anaesthetics (whether intravenous or inhaled) which may themselves be epileptogenic.

This information is provided for healthcare professionals and should not be used as a patient information leaflet.

It is recommended that Clozaril is withheld for 12 hours before surgery and that the patient receives his/her next dose after surgery at the usual time and at full dose if the patient's vital signs are stable. If Clozaril is discontinued for more than 48 hours it must be re-titrated beginning at the 12.5mg dose.

Clozaril has an alpha-adrenoceptor blocking effect1. Clozaril may therefore reduce the blood-pressure-increasing effect of norepinephrine or other predominantly α-adrenergic agents and patients treated with Clozaril may require higher doses of these drugs. In addition, patients treated with Clozaril may paradoxically experience hypotension when administered epinephrine.

Finally, concern is occasionally raised regarding the use of Clozaril in patients with a personal or family history of malignant hyperpyrexia (MH). It is unlikely that Clozaril is a trigger for MH and there have been reports of patients known to have MH who have been successfully treated with Clozaril without any occurrence of MH symptoms. (Clozaril Patient Monitoring Service, 2015).

References:

The use of Clozaril is restricted to patients, physicians and nominated pharmacists registered with the Clozaril Patient Monitoring Service. White cell count with differential count must be monitored according to the UK official recommendations. Clozaril is associated with an increased risk of myocarditis and cardiomyopathy. If suspected Clozaril must be stopped immediately and the patient referred to a cardiologist and not re-exposed to Clozaril. Indications: Treatment-resistant schizophrenia and schizophrenia patients who have severe, untreatable neurological adverse reactions to other antipsychotic agents, including atypical antipsychotics. Psychotic disorders occurring during the course of Parkinson's disease, where standard treatment has failed.

Presentations: Tablets containing 25 mg and 100 mg of clozapine. Dosage and Administration: Treatment-resistant schizophrenic patients: 12.5 mg once or twice on first day, followed by 25 mg once or twice on second day. If well tolerated, increase dose slowly in increments (see SmPC). In most patients, antipsychotic efficacy can be expected with 200-450 mg/day. Titrate cautiously, use divided dose schedule to reduce risk of hypotension, seizures, sedation. Use lowest effective dose. If dose does not exceed 200 mg/day, it may be given as a single dose in the evening. Once control is achieved, a lower maintenance dose may be effective. Maintain treatment for at least 6 months. Doses up to 900 mg/day can be used. Use in combination with other antipsychotics not generally recommended, taper down and discontinue other oral antipsychotic first before initiating Clozaril.

Patients’ ≥ 60 years: Initiate at 12.5 mg once on first day, with subsequent dose increments restricted to 25 mg/day. Patients <16 years: Not recommended. Psychotic disorders occurring during the course of Parkinson’s disease: Starting dose must not exceed 12.5 mg/day. Increase dose by 12.5 mg increments, with a maximum of two increments per week up to a maximum of 50 mg. Total daily dose should preferably be given as a single dose in the evening. Mean effective dose is usually between 25 and 37.5 mg/day. Doses over 50 mg/day may be used in exceptional cases. Maximum dose of 100 mg/day must never be exceeded. Dose increases should be limited or deferred if orthostatic hypotension, excessive sedation or confusion occurs. Blood pressure should be monitored during the first weeks of treatment.

Contraindications: Hypersensitivity to active substance or to any of the excipients. Patients unable to undergo regular blood tests. History of toxic or idiosyncratic granulocytopenia/agranulocytosis (except if caused by previous chemotherapy). History of Clozaril-induced agranulocytosis. Impaired bone marrow function. Uncontrolled epilepsy. Alcoholic and other toxic psychoses, drug intoxication, comatose conditions. Circulatory collapse and/or CNS depression of any cause. Severe renal or cardiac disorders (e.g. myocarditis). Active liver disease associated with nausea, anorexia or jaundice; progressive liver disease, hepatic failure. Paralytic ileus. Concurrent treatment with substances known to have substantial potential for causing agranulocytosis. Concomitant use of depot antipsychotics is discouraged. Warnings and Precautions: Clozaril can cause agranulocytosis, so is restricted to patients who have initially normal leukocyte findings (White Blood Cell (WBC) count ≥ 3.5x10^9/l and Absolute Neutrophil Count (ANC) ≥ 2.0x10^9/l), and in whom regular WBC counts and ANC can be performed as stipulated above. Refer patients with history of cardiac illness or abnormal cardiac findings on physical examination to a specialist prior to treatment for other examinations that may include ECG. Treat patient only if expected benefits clearly outweigh risks. Treating physician should consider performing a pre-treatment ECG. Immediate discontinuation of Clozaril is mandatory if either WBC count is less than 3.0 x10^9/l or ANC is less than 1.5x10^9/l at any time during Clozaril treatment. Patients in whom Clozaril has been discontinued because of WBC or ANC deficiencies must not be re-exposed to

This document is uncontrolled once printed. Please refer to the Trust intranet for the current version.
Clozaril. Following discontinuation, haematological evaluation is required until haematological recovery has occurred. If Clozaril has been withdrawn and either a further drop in the WBC count below 2.0x10^9/l occurs or the ANC falls below 1.0x10^9/l, management of this condition must be guided by an experienced haematologist. Patients must be educated to contact the treating physician immediately if any kind of infection, fever, sore throat or other flu-like symptoms develop. WBC and differential blood counts must be performed immediately if any symptoms or signs of an infection occur. If, during therapy, either the WBC count falls to between 3.5x10^9/l and 3.0x10^9/l or the ANC falls to between 2.0x10^9/l and 1.5x10^9/l, haematological evaluations must be performed at least twice weekly until the patient’s WBC count and ANC stabilise within the range 3.0-3.5x10^9/l and 1.5-2.0x10^9/l, respectively, or higher. Patients with rare hereditary problems of galactose intolerance, Lapp lactase deficiency or glucose-galactose malabsorption syndrome should not take this medicine. Discontinuation of Clozaril is recommended if eosinophil count rises above 3.0x10^9/l; therapy should be restarted only after eosinophil count has fallen below 1.0x10^9/l. Discontinuation of Clozaril therapy is recommended if platelet count falls below 50x10^9/l. Orthostatic hypotension, with or without syncope, can occur during Clozaril treatment. Rarely, collapse can be profound and may be accompanied by cardiac and/or respiratory arrest that is more likely to occur with concurrent use of certain medications (see SmPC for further details) and during initial titration with rapid dose escalation. Patients starting Clozaril require close medical supervision. Clozaril is associated with an increased risk of myocarditis, pericarditis / pericardial effusion and cardiomyopathy; these reports include fatalities. Myocarditis or cardiomyopathy should be suspected in patients who experience persistent tachycardia at rest, especially in the first two months of treatment, and/or palpitations, arrhythmias, chest pain and other signs and symptoms of heart failure or symptoms mimicking myocardial infarction. Flu-like symptoms may also be present. If myocarditis or cardiomyopathy is suspected, Clozaril should be promptly stopped and patients immediately referred to a cardiologist. Patients with clozapine-induced myocarditis or cardiomyopathy should not be re-exposed to Clozaril. Closely observe patients with a history of epilepsy during Clozaril therapy. Patients with stable pre-existing liver disorders need regular LFTs. Treat with caution. LFTs should be performed in patients in whom symptoms of liver dysfunction develop during Clozaril therapy. If elevation of LFTs is clinically relevant or jaundice occurs, treatment must be discontinued. Resume only if LFTs return to normal and monitor closely. Clozaril can cause undesirable effects through anticholinergic activity, including; impairment of intestinal peristalsis, ranging from constipation to intestinal obstruction, faecal impaction and paralytic ileus, sometimes fatal. Use with care in patients with a history of colonic disease or lower abdominal surgery and in patients receiving concomitant medications known to cause constipation. Care also required in prostatic enlargement and narrow-angle glaucoma. Patients’ ≥ 60yrs may be particularly susceptible to the anticholinergic effects and orthostatic hypotension and tachycardia. High temperatures should be evaluated to rule out infection, This document is uncontrolled once printed. Please refer to the Trust intranet for the current version.
agranulocytosis or neuroleptic malignant syndrome (NMS). If NMS confirmed discontinue Clozaril immediately. Impaired glucose tolerance and/or development or exacerbation of diabetes mellitus has been reported. Patients with established diagnosis of diabetes mellitus started on Clozaril should have regular glucose control monitoring. Patients with risk factors for diabetes should have fasting glucose at start of treatment and periodically during treatment. Patients developing hyperglycaemia during treatment should have fasting glucose test. Baseline and follow up lipid evaluations and weight monitoring recommended due to risk of adverse lipid alterations and weight gain. Metabolic changes may increase CVS/CVA risk. Risk factors for venous thromboembolism should be identified before and during treatment and preventative measures undertaken. Avoid immobilization. Gradual withdrawal recommended as acute withdrawal reactions have been reported. If abrupt discontinuation is necessary, closely observe patients for recurrence of psychotic symptoms and of cholinergic rebound. Clozaril should be used with caution in patients with risk factors for stroke. In dementia patients a threefold increase in CVAs has been seen in trials with some atypicals. A small increase in mortality has been seen in elderly dementia patients taking antipsychotics. Caution advised in patients with known cardiovascular disease, risk of CVA, family history of QT prolongation or concomitant medications known to increase QT interval. Activities such as driving or operating machinery should be avoided, especially during the initial weeks of treatment. Interactions: Bone marrow suppressants e.g. carbamazepine, chloramphenicol, sulphonamides (e.g. co-trimoxazole), pyrazolone analgesics (e.g. phenylbutazone), penicillamine, cytotoxic agents and long-acting depot injections of antipsychotics. Benzodiazepines, anticholinergics, antihypertensives, alcohol, MAOIs and CNS depressants, including narcotics. Highly protein bound drugs (e.g. warfarin and digoxin), phenytoin, lithium, rifampicin, valproic acid, noradrenaline, adrenaline and smoking. CYP1A2 inducers (e.g. omeprazole). CYP1A2 inhibitors, e.g. fluvoxamine, caffeine, ciprofloxacin. Drugs known to increase QTc interval or cause electrolyte imbalance Pregnancy and Lactation: Limited clinical data on clozapine exposed pregnancies. Caution when prescribing to pregnant women. Neonates exposed to antipsychotics in third trimester are at risk of adverse events including extrapyramidal and/or withdrawal symptoms. New borns should be monitored carefully. Mothers receiving Clozaril should not breast-feed. Normal menstruation may occur as a result of switching from other antipsychotics. Ensure adequate contraceptive measures in women of childbearing potential. Adverse Reactions: Prescribers should consult the SmPC for full information regarding side-effects. Adverse reactions are ranked under headings of frequency. Very common (≥1/10), common (≥1/100, <1/10), uncommon (≥1/1,000, <1/100), rare (≥1/10,000, <1/1,000), very rare (<1/10,000), Very common: Drowsiness/sedation, dizziness, tachycardia, constipation, hypersalivation. Common: Leucopenia/decreased WBC/neutropenia, eosinophilia, leukocytosis, weight gain, blurred vision, headache, tremor, rigidity, akathisia, extrapyramidal symptoms, EEG changes, seizures, convulsions, myoclonic jerks, ECG changes, hypertension, postural hypotension, syncope, nausea, vomiting, anorexia, dry mouth, elevated liver enzymes, urinary incontinence, urinary retention, fatigue, fever, benign hyperthermia, disturbances in sweating/temperature regulation, dysarthria. Uncommon: Agranulocytosis, neuroleptic malignant syndrome, dysphagia. Rare: Anaemia, impaired glucose tolerance, diabetes mellitus, restlessness, agitation, confusion, delirium, circulatory collapse, arrhythmias, myocarditis, pericarditis/pericardial effusion, thromboembolism, aspiration of ingested food, pneumonia and lower respiratory tract infections (may be fatal), dysphagia, hepatitis, cholestatic jaundice, pancreatitis, increased CPK. Very rare: Parotid gland enlargement, Obsessive

This document is uncontrolled once printed. Please refer to the Trust intranet for the current version.
compulsive symptoms, Thrombocytopenia, thrombocythaemia, ketoacidosis, hyperosmolar coma, severe hyperglycaemia, hypertriglyceridaemia, hypercholesterolaemia, tardive dyskinesia, cardiomyopathy, cardiac arrest, respiratory depression/arrest, intestinal obstruction/paralytic ileus/faecal impaction, fulminant hepatic necrosis, skin reactions, interstitial nephritis, priapism, sudden unexplained death. Not known: EEG changes, cholinergic syndrome after abrupt withdrawal, myocardial infarction, angina, chest pain, nasal congestion, diarrhoea, heartburn, dyspepsia, abdominal discomfort, muscle pain, muscle weakness, muscle spasms, renal failure, venous thromboembolism, drug withdrawal syndrome neonatal. Package Quantities and Basic NHS Price: Community pharmacies only: 28 x 25mg tablets: £5.40, 28 x 100mg tablets: £21.56. Hospital pharmacies only: 84 x 25mg tablets: £16.18, 84 x 100mg tablets: £64.68, 100 x 25mg tablets: £19.26, 100 x 100mg tablets: £77.00. Supply of Clozaril is restricted to pharmacies registered with the Clozaril Patient Monitoring Service. Product Licence Numbers: PL 00101/0228. Legal Category: POM. Date of last revision of prescribing information: February 2013. Clozaril is a registered Trade Mark. Full prescribing information is available from Novartis Pharmaceuticals UK Ltd, Trading as Sandoz Pharmaceuticals, Frimley Business Park, Frimley, Camberley, Surrey, GU16 7SR. Telephone Number (01276) 698370.

**Date of item preparation:** March 2013 **Item code:** CLO13-C013

**Document control details**

| Author: | Tina Sore  
|         | Alex O’Neill-Kerr  
|         | Lorraine Bastick  
|         | Scott Cherry  
|         | Tracey Shrimpton  
|         | Dr Sabih |

| Approved by and date: |  
| Responsible committee: | Clinical Executive |
| Any other linked Policies: | - |
| Policy number: | CLPr016 |
| Version control: | 3.1 |

<table>
<thead>
<tr>
<th>Version No.</th>
<th>Date Ratified/ Amended</th>
<th>Date of Implementation</th>
<th>Next Review Date</th>
<th>Reason for Change (eg. full rewrite, amendment to reflect new legislation, updated flowchart, minor amendments, etc.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>21/05/2019</td>
<td>21/05/2022</td>
<td>Update.</td>
<td></td>
</tr>
<tr>
<td>3.1</td>
<td>24/06/2019</td>
<td>24/06/2019</td>
<td>21/05/2022</td>
<td>Update to ensure clarity relating to maximum numbers of patients per clinic.</td>
</tr>
</tbody>
</table>

This document is uncontrolled once printed. Please refer to the Trust intranet for the current version.