Policy

Policy Guideline

Electroconvulsive Therapy Policy Guideline

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Summary

The Electroconvulsive Therapy Policy Guideline describes best-practice for the use of Electroconvulsive Therapy (ECT) in South Australia, including: indications, adverse effects, consent, facilities, patient preparation, treatment administration, anaesthesia, children and adolescents, continuation and maintenance, training, credentialing, nursing and coordination.

Keywords

Electroconvulsive Therapy, ECT, indications for ECT treatment, ECT risks, ECT procedure, staff training, credentialing and privileging, consent, ECT facility accreditation, policy guideline

Policy history

Is this a new policy? Y
Does this policy amend or update an existing policy? N
Does this policy replace an existing policy? N

Applies to

SA Health and private health facilities that administer ECT.

Staff impact

All staff of SA Health and private health facilities that carry out ECT.

PDS reference

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Version control and change history

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Electroconvulsive Therapy Policy Guideline
Disclaimer

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1. Objective

ECT is a therapeutic medical procedure for the treatment of severe psychiatric disorders (RANZCP 2013). In South Australia, ECT is a prescribed treatment under Section 42 of the Mental Health Act 2009. Application of these ECT Guidelines in clinical practice will assist in ensuring that people who will benefit from ECT receive evidence-based treatment delivered with professionalism and respect. The Guidelines are detailed and provide a comprehensive overview of the administration of ECT in South Australian health facilities. Linked to this ECT Policy Guideline is the ElectroConvulsive Therapy Chief Psychiatrist Standard, which defines the mandatory minimum standard that must be maintained by health care providers and the health care system.

2. Scope

The ECT Policy Guideline applies to all facets of care, indications for treatment and each element of the treatment pathway, including minimisation of potential risks, issues of consent, facilities, anaesthesia, application of procedure, and quality improvement framework.

Special issues include:
• the potential use of ECT in children and adolescents which remains a rare occurrence and
• the use of continuation and maintenance ECT.

The mental health outcomes for the individual patient and the population that result from this prescribed treatment will be routinely measured and systematically monitored to ensure continuous quality improvement (CQI) and assist in health service review.

3. Principles

Services, managers and clinicians will be guided by the following principles in the provision of ECT:

> ECT services should be designed to bring about the best therapeutic outcomes for patients and, as far as possible, their recovery and participation in community life.
> ECT services should be guided by evidence-based best-practice.
> ECT should be provided on a voluntary basis whenever possible.
> There should be regular medical examination of every patient’s mental and physical health.
> The needs of patients, their families and carers from diverse cultural and linguistic groups should be considered in providing treatment that is accessible and responsive to the specific needs of these groups
> Patients, and their families and carers, should be provided with information about their illness, treatment options and rights, unless there are specific reasons that it is not practicable and safe to do so.
> All aspects of the provision of ECT should be documented.
4. ElectroConvulsive Therapy Policy Guideline

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Background

The first ECT treatment in Australia was conducted by Dr Hugh Birch at Glenside Hospital, South Australia in 1942. Since the Second World War the development of ECT has made significant progress worldwide as a key medical treatment in psychiatry for severe psychiatric illness (Abrams 2002). In the past decade, double-blind randomised controlled trials have identified that the efficacy and side effects of ECT are highly dependent on treatment technique, which involves the electrode placement and dosage interactions, relative to seizure threshold (Sackeim et al 2008). Advances in the delivery of ECT, including anaesthesia and muscle relaxation, with carefully adjusted ECT dosing schedules, ensure that treatment is generally well tolerated by patients.

The decision to use ECT is dependent on several factors, including severity and chronicity of the patient’s condition, the likelihood that alternative treatments would be effective, the patient’s preference, and a weighing of the risks and benefits (Sackeim et al 2008; Lisanby et al 2008).

The best evidence for effectiveness of ECT is in the treatment of major depression. A first-line treatment recommendation for moderate major depressive disorder includes antidepressant mono-therapy, psychotherapy, and the combination of both (Davidson 2010). In severe psychiatric illnesses, combinations of pharmacotherapy and electroconvulsive therapy, or combinations of pharmacotherapy and psychotherapy are recommended (Davidson 2010, Pompili 2013).

While there continues to be debate about refinement of treatment techniques, there are many areas of consensus (RANZCP 2007). As knowledge and practice of ECT has continued to develop, the environment in which ECT is administered has reflected these changes.

Guideline Development

The development of the South Australian Guidelines for ECT (2014) was led by the Office of the Chief Psychiatrist together with the SA ECT Advisory Committee and Expert Reference Group. These Guidelines were built on the previous SA ECT Practice Guidelines (RANZCP, SA 2003) and the ECT Guidelines published by other Australian jurisdictions.

The ECT Advisory Committee and Reference Group membership included local, state and national clinical discipline experts, public and private sector service management, government policy and information technology experts, and consumers and carers with lived experience expertise. The evidence-base used in these ECT Guidelines was determined on the clinical recommendations, judgement, experience and consensus of the ECT Advisory Committee and Expert Reference Group.

These Guidelines were developed to be disseminated and implemented in the South Australian healthcare facilities that administer ECT treatment. The implementation and impact of the Guidelines are to be evaluated and the guidelines revised regularly.
Acknowledgments

The South Australian Department for Health and Ageing acknowledges the South Australian Branch of Royal Australian and New Zealand College of Psychiatrists (RANZCP SA Branch) for their commitment to excellence and best practice in the administration of ECT to the South Australian community. The first South Australian ECT Guidelines were developed by the RANZCP SA Branch, ECT Subcommittee in 2003.

The South Australian Department of Health and Ageing acknowledges the generosity of the NSW Department of Health for permission to use the Policy Directive and Guidelines: Electroconvulsive Therapy: ECT Minimum Standards of Practice in NSW (2011) in this development.

In particular, the South Australian Department for Health and Ageing and the Office of the Chief Psychiatrist acknowledge the generosity of Professor Colleen Loo, who willingly provided her knowledge and expertise in reviewing the SA ECT Guideline drafts, participated in the March 2013 ECT Guidelines Workshop, and assisted in the development of clinical consensus.

South Australian ECT Advisory Committee
Chair: Dr Panayiotis Tyllis, Chief Psychiatrist, Mental Health Strategy Policy and Legislation. Membership (2012-2014): Dr Patrick Clarke, Mr Don Davidson, Ms Lyn English, Dr Shane Gill, Ms Elizabeth Kaye, Dr Caroline Lake, Dr Brian Mckenny, Ms Mary Merchant, Ms Sandra Miller, Dr George Rawson, Ms Bronwyn Scott, Ms Tracey Siebert, Mrs Patricia Sutton, Dr Sue Waite, Ms Jeanette Walsh, Dr Ivan Ward.

ECT Expert Reference Group
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Guideline 1 – Indications for Electroconvulsive Therapy

Electroconvulsive therapy (ECT) has been used for over 60 years in the treatment of psychiatric disorders. In this period, ECT treatment has undergone significant improvements in Western facilities worldwide (Tiller and Lyndon 2003).

The most common indication for ECT in Australia is a major depressive episode (Tiller and Lyndon 2003). ECT is also known to have a role in the treatment of other conditions including mania, schizophrenia, schizoaffective disorder, catatonia, neuroleptic malignant syndrome and Parkinson’s disease (Abrams 2002).

Each of these indications for ECT detailed includes Recommendations for Clinical Practice below, which were derived from the scientific evidence-base underpinned by expert consensus from the SA ECT Advisory Committee and Expert Reference Group. The preferences of the patient, their family and carers should always be considered in the decision to treat any patient with ECT.

1.1 Major depressive episode

1.1.1 Recommendations for Clinical Practice

Major depression is the primary diagnostic indication for treatment with ECT. ECT is a highly effective treatment, particularly for severe depressive disorders (RANZCP 2013). There are certain clinical presentations of major depression where ECT may be more or particularly efficacious:

a) Depression with psychotic features.
b) Depression with psychomotor agitation or retardation.
c) As an emergency intervention in major depression; i.e. high suicide risk and those patients who pose a risk by reason of poor oral intake.
d) Depression with treatment resistance to an adequate course of pharmacotherapy.
e) Depression that has previously responded well to ECT.
f) Features of catatonia

1.1.2 Research Evidence

1.1.2.1 The efficacy of ECT treatment (over sham-ECT; a placebo form of treatment) has been established in a series of randomised controlled trials conducted between 1956 and 1985, and confirmed in meta-analyses (Janicak et al 1985; Group 2003; Kho et al 2003; Pagnin et al 2004; Greenhalgh et al 2005).

The efficacy of ECT was demonstrated despite the inclusion of trials that used forms of ECT now known to be relatively ineffective, such as low-dose right unilateral ECT.

1.1.2.2 Randomised control trials have compared ECT to a range of medications, most commonly tricyclic antidepressants or monoamine oxidase inhibitors.

1.1.2.3 ECT has demonstrated remission rates of more than 60% for major depression when the most effective forms of ECT are used (Sackeim 1993, 2000; McCall 2002).

a) Remission rates have been as high as 83% following ECT treatment for major depression together with psychotic features (Petrides et al 2001).

b) One study compared ECT to a more contemporary antidepressant (paroxetine) and found that moderate dose, right unilateral ECT was superior
to medication (Folkerts et al 1997). However, there were no randomised control trials comparing ECT to newer dual-action anti-depressants such as venlafaxine.

c) A number of clinical variables including the depression sub-type and the degree of medication resistance may help predict responses to ECT (Sobin et al 1996; Fink et al 2007; Razmussen et al 2009).

d) Response rates vary greatly according to the ECT treatment technique, particularly associated with the electrode placement and the dose of relative seizure threshold (Sackeim et al 1993, 2000; Mukherjee et al 1994).

e) Despite these limitations, meta-analyses of the literature demonstrate ECT is superior in efficacy to medication for major depression (Janicak et al 1985; Group 2003; Kho et al 2003; Pagnin et al 2004; Greenhalgh et al 2005).

f) ECT has also been shown to be an appropriate ‘first-line’ treatment when a rapid response to treatment is required; e.g. in the case of high suicide risk, when there is inadequate oral intake or medication is contradicted or cannot be tolerated (Sobin et al 2006).

1.2 Manic episode

1.2.1 Recommendations for Clinical Practice:

RANZCP Electroconvulsive Therapy Position Statement 74 (RANZCP 2013) states that ECT has therapeutic benefit for patients with mania and should be considered a therapeutic option alongside other treatments on an individual basis, after detailed specialist psychiatric assessment. There are certain clinical presentations of mania where ECT may particularly efficacious:

a) As an emergency intervention in mania i.e. for patients with a compromised physical state and/or patients who pose a danger to themselves or others.

b) Mania with treatment resistance to appropriate pharmacotherapy.

c) For patients who are intolerant to medication side effects where ECT may be a safer alternative to high dose neuroleptics.

1.2.2 Research Evidence

ECT was used extensively in the treatment of manic episodes prior to the advent of effective pharmacological treatment. A review of pooled, non-randomised data regarding use of ECT in mania over the past 50 years suggests rates of remission or clinical improvement in up to 80% of patients (Mukherjee et al 1994).

Only three randomised controlled studies have compared pharmacological treatment and ECT for the treatment of manic episodes (Small et al 1988; Sikdar et al 1984; Mukherjee et al 1989).

a) ECT was more rapidly effective than lithium carbonate in acute mania in an 8 week trial (Small et al 1988).

b) Bitemporal sine-wave ECT was more effective than sham ECT in augmenting chlorpromazine (Sikdar et al 1984).

c) ECT achieved better responses in patients who had already failed a trial of lithium or haloperidol or lithium plus haloperidol (Mukherjee et al 1989).

There is evidence to suggest that ECT may be effective in medication-resistant mania (Mukherjee et al 1994, Fink 2006).
1.3 Schizophrenia

1.3.1 Recommendations for Clinical Practice

Largely due to improvements in the pharmacotherapy treatments, ECT is now less commonly used in the treatment of schizophrenia than was historically the case.

There is a lack of well-designed, large scale studies that address the role of ECT in the treatment of schizophrenia (Pompili et al 2013). Therefore it is difficult to determine definitive recommendations on its use. The role of ECT in chronic treatment-resistant schizophrenia is unclear, but may be of benefit in some cases.

The available data suggests that ECT is a relatively safe treatment and may be of value when used in combination with antipsychotic medications in treating both an acute episode of schizophrenia and in the prevention of relapse.

It is recognised that ECT may be helpful in patients with incomplete response to pharmacotherapy who present with:

a) Acute onset of psychotic symptoms (rather than chronic symptoms) and/or the presence of mood symptoms.

b) Schizophrenia with catatonia.

c) Previous beneficial response to ECT.

1.3.2 Benefit of ECT in the treatment of schizophrenia

With the advent of effective antipsychotic medications, the use of ECT in the treatment of schizophrenia has declined (Gazdag et al 2009).

a) The evidence-base supporting the benefit of ECT in the treatment of schizophrenia is limited.

b) Interpretation of the available study findings for ECT treatment of schizophrenia is difficult because the analysis of pooled results are from heterogeneous patient samples, including those with acute and chronic symptoms, and those with catatonic features who may well have a different response to treatment (Gazdag et al 2009; Pompili et al 2013).

c) Only two small studies have compared ECT alone with sham ECT plus pharmacotherapy: ECT was equivalent to chlorpromazine in combination with sham ECT (Bagadia et al 1983), and ECT was found to be superior to risperidone in lorazepam-resistant catatonic schizophrenia (Girish 2003).

d) All other sham-controlled studies of ECT in schizophrenia explored the efficacy of ECT as an augmentation strategy rather than mono-therapy (Taylor et al 1989; Agarwal et al 1985; Brandon et al 1985; Abraham et al 1987; Sarkar et al 1994; Goswami et al 2003; Ukpong et al 2002). These studies showed ECT as an augmentation strategy achieved mixed results, with some finding advantage for ECT in speed and/or extent of response, but others finding no difference between the groups.

e) In a Cochrane review of the efficacy and safety of ECT in schizophrenia, only 24 randomised control trials conducted over the last 50 years met inclusion criteria:

- Many of these randomised control trials had significant methodological flaws, including poorly defined patient samples and treatment regimens and inadequate sample sizes and trial durations (Tharyan et al 2005).

- When all the randomised data was pooled, ECT resulted in greater and faster rates of global and symptomatic improvement than sham ECT or placebo in the short term treatment of schizophrenia.
• However, any advantage of ECT appears to be lost within 6-8 weeks of its cessation. Monotherapy with antipsychotics was superior to ECT alone. There was a trend favouring the combination of antipsychotics and ECT compared to antipsychotics alone, however this was not statistically significant (Tharyan et al 2005).

f) The most recent systematic review of indications for ECT treatment in schizophrenia by Pompili et al (2013), found the most common indication for ECT was to augment pharmacotherapy.

• The most common accompanying symptoms were, in order, catatonia, aggression and suicidal behaviour.

• The combination of ECT with pharmacotherapy can be useful for drug resistant patients when rapid global improvement and reduction of acute symptomology are required. The use of an ECT-risperidone combination or ECT-clozapine combination in patients non-responsive to prior pharmacotherapy was found most effective (Pompili et al 2013).

• Catatonia patients responded significantly better to ECT than any other subtype of schizophrenia.

1.3.3 Benefit of ECT in treatment resistant schizophrenia

a) The use of ECT combined with antipsychotics in chronic-treatment resistant schizophrenia has been poorly studied, although it may have a significant role given the disabling nature of the condition (Braga et al 2005; Goswami et al 2003).

b) Open studies of the combination of ECT and medication suggest an advantage over antipsychotic therapy alone in medication resistant patients, although no randomised controlled trial has addressed this issue (APA 2001; Braga et al 2005)

c) The combination of clozapine with ECT in treatment-resistant schizophrenia may be beneficial and safe according to findings of several case reports and series (Kho et al 2004; Braga et al 2005).

1.4 Schizoaffective disorder

1.4.1 Recommendations for Clinical Practice:

For patients with schizoaffective disorder presenting with affective symptoms as part of the clinical picture, diagnostic indications for treatment with ECT will follow the affective episodes of the illness as outlined above for major depressive episode and manic episode.

For patients with psychotic symptoms in the absence of an affective episode, ECT has the same indications as for schizophrenia.

1.4.2 Research Evidence:

a) There is little evidence on the use of ECT in schizoaffective disorder.

b) ECT may be effective in treating affective symptoms; however the heterogeneity of the disorder in the case-based literature makes it difficult to draw firm conclusions (Ries et al 1981; Fear 2005).

c) ECT may have a role in the management of affective or psychotic symptoms in schizoaffective disorder when other treatment options have failed.
1.5 Neuroleptic malignant syndrome

1.5.1 Recommendations for Clinical Practice

Neuroleptic Malignant Syndrome (NMS) is a life threatening neurological emergency following the use of neuroleptic agents with a characteristic clinical profile (Greenberg and Gujavarty 1985, Davis et al 1991).

ECT may be considered for treatment of neuroleptic malignant syndrome (NMS) when;

a) Autonomic stability has been re-established.

b) There is inadequate response to pharmaceutical measures or non-pharmacological treatment is required for continuing co-morbid psychiatric illness.

1.5.2 Research Evidence

a) The efficacy of ECT in neuroleptic malignant syndrome (NMS) is well recognised, despite the absence of randomised controlled data (APA 2001).

b) ECT reduces the mortality of NMS by approximately a half. This same effect being achieved by treatment with dantrolene, amantadine, L-DOPA and bromocriptine (Nolan and Zwaan 1990, Davis et al 1991).

c) When pharmacological treatments fail to control the NMS disorder, ECT can be potentially lifesaving in severe cases (Trollor et al 1999).

d) However, ECT for NMS is not without hazard and has been associated with ventricular fibrillation, cardiac arrest and uncontrolled spontaneous seizures (Regestein et al 1985).

e) ECT is sometimes used to control psychiatric symptoms whilst neuroleptics may be contraindicated during an episode.

f) Care must to be taken in the anaesthetic management of patients with NMS, particularly when autonomic instability is a key feature.

1.6 Catatonia

1.6.1 Recommendations for Clinical Practice

Malignant catatonia (MC) and NMS share the common features of hyperpyrexia and rigidity, however in MC a prodrome of behavioural agitation or psychosis usually precedes the neurological symptoms (Nolan and Zwaan 1990).

For patients with malignant catatonia (MC), consideration of treatment with ECT should follow the same principles as outlined above for NMS.

For catatonic presentations caused by schizophrenia or a major depressive episode, please see recommendations under those indications above.

1.6.2 Research Evidence

a) Most of the evidence on the use of ECT in catatonia is drawn from single case reports or case series that suggest that ECT is a very effective treatment for catatonia regardless of the underlying cause (Rholand et al 1993; Hawkins et al 1995; Hatta et al 2003).

b) Many case reports suggest that ECT can be effective in treating catatonia related to organic conditions (Gazdag et al 2009).

c) In one study, ECT was more effective than oral risperidone in 18 in-patients with non-organic, non-functional catatonia (Girish 2003).
d) ECT has been demonstrated as the ‘first-line’ treatment and is effective in malignant catatonia, a condition defined as an acute onset of excitement, fever, autonomic instability and delirium that may be fatal (Phibrick et al, 1994; Fear 2005; Baker et al 2008)

1.7 Parkinson’s Disease

1.7.1 Recommendations for Clinical Practice

ECT may be considered when the patient has a mental illness with co-morbid Parkinson’s disease

Note: Under the SA Mental Health Act 2009 Section 42, ECT must not be administered to a patient unless the patient has a mental illness such as major depression or psychosis unresponsive to other treatment modalities.

1.7.2 Treatment Considerations

a) In treating patients with Parkinson’s disease and associated sub-cortical dementia, consideration should be given to selecting a form of ECT that is less likely to cause cognitive impairment (Loo et al 2011).

b) L-DOPA, if continued, should be reduced by half during a course of ECT to reduce the frequency of emergent dyskinesia and delirium (Douyon et al 1989)

1.7.3 Research Evidence

a) ECT (bilateral or unilateral) was shown in a number of case studies to be effective in the treatment of Parkinson’s disease and parkinsonism (perhaps with the exception of tremor) independent of psychiatric co-morbidity (Lebensohn and Baldin et al 1981; Jenkins 1975, Andersen et al 1987).

b) However, alleviation of parkinsonian symptoms was short lived with remissions of up to 6 weeks following a single course of treatment (Douyon et al 1989; Andersen et al 1987).

c) There is considerable experience in the use of ECT in Parkinson’s disease and case reports have suggested more sustained success with maintenance ECT over several months before relapse (Douyon et al 1989; Popeo and Kellner 2009).

d) ECT may have a role in management of motor symptoms – even in the absence of a psychiatric disorder, and this is especially true when pharmacological treatment is contraindicated or the patient develops intolerable medication side-effects (Kennedy 2003).

e) In a small randomised controlled study of people with ‘on-off’ phenomena, ECT was more effective than sham ECT in prolonging the duration of ‘on’ periods (Andersen et al 1987).

f) In a review of published case reports, Kennedy et al found that 58 of 75 patients who had ECT for motor symptoms improved. These patients however, were particularly vulnerable to the cognitive side effects (Kennedy et al 2003).

g) If ECT is being considered for the treatment of the motor symptoms of Parkinson’s disease, a neurologist experienced in the management of Parkinson’s disease must be consulted.
1.8 Other indications

1.8.1 Recommendations for Clinical Practice

A second opinion from a senior psychiatrist must be obtained:

a) Where ECT is being considered for mental illness indications other than those listed above.

b) Where there is uncertainty around diagnostic indication.

*Note:* At least 1 of the reviewing psychiatrists must be a credentialed ECT practitioner.

1.8.2 Research Evidence

Case series and reports suggest evidence for the use of ECT in:

a) Obsessive compulsive disorder.

b) Chronic pain.

c) Post-traumatic stress disorder.

d) Severe agitation in dementia (Maletzky et al 1994; Roccaforte et al 2000; Grant et al 2001; Razmussen et al 2002; Margoob et al 2009).

*Note:* The efficacy of ECT in these conditions is not established by randomised controlled trials and ECT should not be used to treat these disorders.
Guideline 2 – Adverse Effects of ECT

2.1 Non-cognitive risks of treatment
ECT is a safe, effective treatment when it is performed by a qualified multidisciplinary team in a dedicated clinical setting. The balance of risks and benefits of ECT treatment must be assessed for each individual, and it may be important to consult relevant medical specialists. Risks of adverse effects of ECT must be considered in the context of the risks to the patient unresponsive to other treatments. Importantly, untreated psychiatric illness has been associated with higher morbidity and mortality from co-morbid medical disorders, morbidity from attempted suicide and mortality from completed suicide.

2.2 Cardiovascular risks
a) Increased complication rates from ECT have been associated with pre-existing cardiac disease.

b) However, most complications are minor and the vast majority of patients can safely complete treatment.

c) In patients at risk of prolonged asystole and arrhythmias during ECT, careful consideration of electrode placement is recommended. Preliminary research suggests that bi-frontal placement is associated with less asystole than bi-temporal and right unilateral placements (Stewart et al, 2011, Nagler 2010, 2011).

d) The risk benefit of stimulus dose titration must also be carefully assessed in these patients as sub-convulsive stimuli may increase the risk of bradycardia and asystole.

e) In patients with active cardiac conditions (e.g. unstable angina, poorly compensated congestive cardiac failure, severe valvular heart disease, significant arrhythmias, uncontrolled hypertension) referral to a cardiologist is advisable.

f) Once cardiovascular conditions are stable, most patients can safely complete an ECT course.

2.3 Cardiovascular complications of ECT
a) During and immediately following the electrical stimulus: sinus bradycardia, asystole, and hypotension may occur. This is due to the vagal stimulation of the electrical charge and pronounced parasympathetic surge. When a seizure occurs, catecholamine is released reversing this effect and correcting bradycardia. Sub-threshold seizures are therefore undesirable in patients with cardiac disease.

b) During the seizure: tachycardia and hypertension, resulting from increased sympathetic outflow and adrenal catecholamine release. This increases myocardial oxygen demand and may increase the risk of cardiac ischaemia among patients with coronary artery disease.

c) Arrhythmias may occur, commonly ectopic beats, bigeminy and supraventricular tachycardia, but most are transient and resolve spontaneously. Prominent cerebrovascular changes occur during the seizure, including an increased cerebral blood flow.

d) Immediately following the seizure: fall in heart rate and blood pressure to pre-treatment levels occurs. Some patients can experience persisting hypertension and tachycardia during this post-ictal period and serious cardiac complications can occur.
2.4 Musculoskeletal risks

Non-cardiovascular events associated with ECT include:

a) Suxamethonium-induced muscle soreness
b) Headache

These symptoms occur after treatment and are generally managed conservatively with simple analgesia such as aspirin or paracetamol.

Non-cardiovascular risks that may occur within the ECT episode of treatment include:

a) Tonic spasm of the temporalis muscle due to the direct application of the electrical stimulus to the muscle.

b) Generalised tonic/clonic muscle contractions with the seizure.

c) Tongue and dental injury

Use of appropriate disposable mouth guards and adequate muscle relaxation, mitigate against these risks. Dentition review should be considered prior to ECT.

2.5 High risk situations

2.5.1 Recent myocardial infarction

a) The risk is highest in the first 10 days after infarction.

b) Arrhythmia and, less commonly, myocardial rupture, are possible complications.

c) The risk is likely to have minimised by three months after the infarct.

d) There is little evidence to guide clinical decision-making in this situation.

2.5.2 Unstable angina

The administration of ECT places physiological stress on the heart that may precipitate myocardial ischaemia in these conditions.

2.5.3 Poorly compensated congestive cardiac failure

a) Poorly compensated congestive cardiac failure (CCF) refers to chronic CCF that is poorly controlled by medication. ECT places extra stress on the heart which may precipitate respiratory failure.

b) Consultation with a cardiologist is recommended in these conditions.

2.5.4 Cardiac pacemakers and implanted cardiac defibrillators

Cardiac pacemakers generally protect against the marked changes in heart rate that usually occur with the administration of the ECT stimulus and the subsequent seizure. However, in rare instances pacemakers may over sense when exposed to Electro Magnetic Interference (EMI) which can result in inhibition of the pacemaker.

a) To minimise the risk of a depleted battery or lead problem, it is recommended that the pacemaker has been interrogated within the last 12 months. If not done or unknown, this can be arranged before treatment with a cardiac technician.

b) The patient's cardiologist and the device manufacturer should be consulted to determine whether the pacemaker needs to be switched to 'fixed rate' (asynchronous mode) from 'demand mode', though this is usually unnecessary with modern devices. Alternatively, a magnet can be placed over the device during delivery of therapy to force pacing in asynchronous mode in the unlikely event of pacemaker inhibition and
prolonged asystole.

c) It is recommended that patients with pacemakers have cardiac monitoring during ECT.

d) Case reports indicate that adverse events are low when patients undergo ECT with their pacing mode unmodified. Therefore pacemaker reprogramming is not usually necessary during the course of ECT.

Implanted cardiac defibrillators (IDC) may misinterpret the EMI and the benign tachyarrhythmias that occur during seizures as ventricular tachycardia and deliver a shock. The unnecessary discharge of the IDC might initiate a true ventricular arrhythmia.

a) To minimise the risk of a depleted battery or lead problem, it is recommended that the IDC has been interrogated within the last 6 months. If not done or unknown, this can be arranged before treatment with a cardiac technician.

b) The patient’s cardiologist and the device manufacturer should be consulted to check whether the defibrillator may be triggered by the changes in heart rate that occur with ECT.

c) It is recommended that patients with IDCs have cardiac monitoring during ECT.

d) Case reports indicate that IDCs should generally be reprogrammed pre-operatively to deactivate defibrillation and reprogrammed post ECT. Alternatively, a magnet can be applied to temporarily to deactivate defibrillation in those devices which are responsive to magnets.

2.5.5 Aortic and cerebral aneurysms

a) Hypertension associated with the seizure theoretically increases the risks of an aneurysm rupturing, but there have been no reports of such an occurrence and several reports of the safe administration of ECT in patients with aneurysms.

b) Consultation with relevant vascular or neurosurgeon is recommended.

2.5.6 Cerebral haemorrhage and infarction

a) Depression is common after stroke and commonly associated with cerebral small vessel disease manifest on MRI. Consequently, ECT is often considered for people with pre-existing cerebrovascular disease.

b) The increase in blood pressure and cerebral blood flow that occur with the seizure pose a theoretical risk of a previous stroke re-infarcting or re-bleeding.

c) There are some case reports of strokes occurring in the hours following ECT; whether there is a causal link remains unknown.

d) It is advisable to consult with a neurologist prior to considering ECT (i.e. consult re risk of further stroke due to change in blood pressure associated with ECT).

2.5.7 Intracranial space occupying lesions

a) Intracranial pressure that has been increased by a space-occupying lesion may be increased further by ECT, possibly leading to coning.

b) The risk can be reduced with diuretics, steroids, antihypertensives and hyperventilation.

c) Small slow growing masses are unlikely to cause problems.

2.5.8 Endocrine disorders

a) ECT can induce a thyroid storm in untreated hyperthyroidism.

b) ECT can induce a hypertensive crisis in phaeochromocytoma.
2.5.9 Retinal detachment and glaucoma
   a) Suxamethonium and seizures can both increase intraocular pressure, which could theoretically be problematic for patients with glaucoma (particularly the narrow angle type) and retinal detachment.
   b) However, there have been no case reports of glaucoma being permanently affected by ECT, or of ECT causing retinal detachment.

2.5.10 Anaesthetic complications
   a) Patients with the rare hereditary pseudo cholinesterase deficiency can suffer prolonged paralysis requiring respiratory support in intensive care, after receiving suxamethonium.
   b) Further information regarding risks associated with anaesthesia for ECT are detailed in Section 7 of this document.

2.6 Other risks

Other factors that may increase the risk associated with ECT include:

2.6.1.1 Poor dentition

A loose or corroded tooth may break during the ECT stimulus due to temporalis spasm and jaw clenching, and could possibly be inhaled. Dentition assessment for ECT will inform strategies to manage potential risks including consideration of formal dental review.

2.6.1.2 Obesity

   a) Obesity can increase the risk of oesophageal reflux and airway complications during a general anaesthetic and may require modification of pre-treatment preparation and procedural management.
   
   b) Patients who have had a gastric band are likely to require the band deflated prior to ECT and reinflated at the conclusion of the course of ECT. Consultation with a bariatric surgeon is recommended.
2.6.1.3 Asthma and COPD

There is an increased risk of hypoxia in patients with asthma and chronic obstructive pulmonary disease (COPD).

2.6.1.4 Osteoporosis

a) Osteoporosis increases the risk of fractures if the seizure is not well controlled, emphasising the need for good relaxation.

b) When it is considered necessary to record a major seizure accurately, using a cuffed limb technique will ensure that a motor seizure is restricted to the isolated limb only.

2.6.1.5 Skull defects and titanium plates

a) While not a barrier to administering ECT, a skull defect or a metal plate over a skull defect necessitate placement of the stimulus electrodes elsewhere, due to the risk of a low impedance pathway to the underlying brain. It is therefore not recommended to place electrodes directly over these areas of issue.

b) Options may include bifrontal and left unilateral electrode placements.

2.6.1.6 Pregnancy and puerperium

Treating psychiatric disorders during pregnancy remains controversial and poses a challenge, particularly as the severity of mental illness may increase during pregnancy. Recent evidence in case reports confirms the safety and effectiveness of ECT in the perinatal mood disorders as at least as effective as drug treatment, if not superior.


a) Numerous case reports show the safety and efficiency of ECT in all three trimesters of pregnancy. No alterations of foetal heart rate, foetal movement or uterine tone during ECT have been reported.

b) Depression in pregnancy is frequent at least one quarter of postnatal depressions have their onset during pregnancy (Omer et al 2011)

c) All psychotropic drugs cross the placenta and may exert unwanted side effects on the foetus.

d) ECT may be considered in pregnancy, particularly in the first tri-mester, when there are significant risks of teratogenesis associated with some psychotropic medications including mood stabilisers.

e) Many psychotropic medications are problematic in the late stages of pregnancy due to neonatal toxicity, and ECT may be an alternative.

f) No teratogenic risks have been associated with brief exposure to the agents commonly administered with ECT, such as propofol, thiopentone, suxamethonium, atropine, and esmolol.

g) An obstetric consultation is recommended, along with foetal heart rate monitoring before and after each treatment after 14 weeks’ gestation.

h) After 20 weeks’ gestation, placing a wedge under the patient’s right hip as for other medical procedures, to avoid compression of IVC and to maximise foetal blood flow should be considered.

i) Beyond the first trimester, risk of regurgitation is high, so intubation should be considered on a case-by-case basis.
j) There is no evidence that the agents used with ECT are harmful to the breastfeeding baby. It is therefore considered safe to breast feed during a course of ECT.

k) There is potential for oxytocine release during an induced seizure stimulating uterine contraction however, there has been no association with induction of preterm labour with ECT reported. Prolonged uterine contraction may be managed effectively with tocolytic therapy.

ECT has been reported as a treatment with high efficiency and low risk in the management of psychiatric disorders during all trimesters of pregnancy, as well as postpartum. Consequently, ECT use in psychiatric disorders during pregnancy is an effective and safe treatment in many cases.

2.6.1.7 Elderly and cognitively impaired

a) There is evidence that elderly people with a major depressive episode are more likely to respond to ECT than younger people.

b) With appropriate intervention, many common medical illnesses in the elderly are not a barrier to the safe administration of ECT.

c) Elderly people with cognitive impairment can usually proceed to ECT with appropriate measures to reduce post-ECT confusion such as:
   i. reduced treatment frequency
   ii. right unilateral electrode placement,
   iii. Ultra briefpulse stimulus.

d) ECT presents less of a medical risk than tricyclic antidepressants in the elderly.

e) Late onset depression may be treatment resistant and respond better to ECT than pharmacotherapy.

2.6.1.8 Prolonged seizures

In the case of a prolonged seizure (greater than 180 seconds) the seizure should be terminated by the anaesthetist, using an appropriate pharmacological intervention (see Section 6: Administration of ECT (6.8 ECT Procedure) for detail).

2.6.1.9 Deep brain stimulators

Patients with deep brain stimulators should not receive ECT due to the risk of electrical current concentration in the brain areas where stimulation leads have been implanted.

2.7 Cognitive risks of ECT

The occurrence of cognitive side-effects with ECT is well recognised and has been a major source of concern for patients undergoing treatment (APA Taskforce 2000; Donahue 2000). Conditions most commonly treated with ECT (major depression, mania and schizophrenia) are also associated with significant cognitive impairment (Porter et al 2007; Reichenberg and Harvey 2007).

a) Many patients report an improvement in memory and cognition as their depression improves after treatment with ECT.

b) The vast majority of research has been conducted in patients receiving ECT for major depression, and has aimed to characterise the incidence and severity of cognitive deficits associated with ECT (Ingram et al 2008).

c) More recent research studies have aimed to optimise ECT technique in order to maintain efficacy whilst minimising cognitive side-effects (Loo et al 2006).
The cognitive effects associated with ECT may be broadly considered as:

- Acute effects.
- Anterograde memory effects.
- Retrograde memory effects.
- Long term / short term memory effects in the long term experience of patients.
- Non-memory effects.

2.7.1 Acute cognitive effects

a) General disorientation immediately after ECT is common (Daniel and Crovitz 1982). This usually lasts from minutes up to two hours. The anaesthesia as well as ECT contribute to this temporary disorientation which is generally mild and resolves without intervention.

b) Orientation to person, place and time generally recover at different rates, with orientation to time generally the slowest to recover (Calev et al 1991).

c) The duration of disorientation is greater with sine-wave stimuli, bitemporal electrode placement, a higher number of treatments in an episode of ECT and higher dose above seizure threshold (Daniel and Crovitz 1982; Sackeim et al 1993; McCall et al 2000).

d) Some evidence suggests that longer duration of post-ictal disorientation predicts the severity of retrograde amnesia after ECT (Sobin et al. 1995).

 e) Routine measurement of this parameter may be useful in identifying those patients at high risk of developing retrograde amnesia earlier in the ECT course, enabling alterations in treatment technique to minimise this adverse effect (Porter et al 2008).

f) This parameter is either measured as ‘time to re-orientation’ or ‘level of disorientation at 30 minutes post-ECT’

g) There can be rare occurrence of a persistent delirium that emerges during a course of ECT. ECT should be suspended until this delirium resolves.

2.7.2 Anterograde memory effects

a) Anterograde memory refers to the acquisition of newly learned information after the ECT has commenced.

b) Impairment in acquisition and retention of verbal and non-verbal material is frequently observed during and immediately after a course of ECT (Ingram et al 2008).

c) Deficits in memory retention are generally more marked and are often slower to recover than those in acquisition.

d) Anterograde memory function generally returns at least to pre-ECT baseline levels within two weeks and almost always within two months, and performance often improves during this period, relative to baseline (Sackeim et al 1993).

e) Longer-term follow-up studies have also demonstrated improvement in performance relative to baseline scores (Sackeim et al 2007).

2.7.3 Retrograde memory effects

Loss of key personal memories, if it occurs, can be the most distressing cognitive impairment for patients to experience.

a) Retrograde memory refers to the recall, after ECT has commenced, of information that was already learnt prior to ECT. Autobiographical memory refers to information
personally experienced whereas impersonal memory refers to information learnt through study (e.g., news information).

b) Deficits in both autobiographical and impersonal memory can occur and tend to be most severe immediately after the index course. More recent memories tend to be more vulnerable than more remote memories, although some patients have reported loss of memories dating back several years (Donahue 2000; Lisanby et al. 2000; Vamos 2008).

c) Although retrograde amnesia generally improves over several weeks following an index course, persistent deficits have been demonstrated in patients receiving bitemporal ECT when compared to right unilateral ECT, both at one to two months after the course, and at longer-term follow-up (Squire et al. 1981; Weiner et al. 1986; Sackeim et al. 2000; Sackeim et al. 2007).

d) In a systematic review of the literature conducted to ascertain patients' perspective on ECT, one in three patients reported lasting retrograde memory loss (Rose et al. 2003). Although a more recent study examining Rose et al.'s findings has suggested this is an overestimate (Bergsholm, 2012). However, the authors of both reviews concluded that loss of autobiographical memory is widely described but insufficiently systematically investigated.

2.7.4 Non-memory effects

a) Studies of the effects of ECT on cognitive domains such as executive function, attention, information processing speed, and general intellect are relatively few and have yielded mixed results presumably as a result of variations in study populations and methodology (Ingram et al. 2008).

b) A number of ECT factors have been reliably demonstrated to be associated with more severe cognitive side-effects of ECT (including memory impairment). These factors include:

- Bitemporal electrode placement.
- Higher dose above seizure threshold.
- Increased frequency of treatments.
- Use of sine-wave ECT.

c) Patient factors such as advanced patient age, low cognitive reserve, and the presence of comorbid neurological disorders may also be relevant, but the importance or effect of these factors is yet to be fully elucidated (Legendre et al. 2003; Gardner and O'Connor 2008).

d) Recent evidence suggests that the use of Ultra briefpulse width ECT (pulse width of 0.3 milliseconds [msec]) significantly reduces the cognitive side-effects of right unilateral ECT, and may prove to have an important role in reducing the cognitive side-effects of ECT (Loo et al. 2008).

e) Assessment of cognitive function and patient quality of life (QoL) at baseline and at completion of a course using a standard screening instrument for cognitive impairment is considered essential and highly recommended.

f) Further assessments during the treatment course are recommended in order to assist in early detection of cognitive deficits and facilitate alterations in treatment technique to minimise adverse cognitive effects.

g) Such alterations may include changing electrode placement, re-titrating seizure threshold to confirm dosing protocol and reducing the stimulus dose if the dose is shown to be too high above threshold, reducing frequency of treatment or consideration of a switch to a form of ECT with less cognitive effects.
h) Patients with cognitive impairment at completion of an ECT course should have at least one repeat cognitive assessment one month later as part of routine clinical follow-up in order to ensure resolution of, or improvement in, cognitive impairment.

i) Further detailed specialist cognitive assessment should be undertaken if significant impairments persist.
Guideline 3 – Consent and Legal Framework

The administration of ECT in South Australia is governed by the South Australian Mental Health Act 2009, the Regulations and the relevant ECT clinical guidelines, policy statements and standards. Other relevant legislation includes: Guardianship and Administration Act 1993, Consent to Medical Treatment and Palliative Care Act 1995 and the Advance Care Directives Act 2013.

3.1 The provision of ECT is underpinned by the following core principles:

a) A patient with capacity has the legal and ethical right to make their own decisions about medical treatment options, including refusal of medical assessment and/or treatment(s).

b) All patients should have their dignity respected.

c) If it is deemed that a patient’s decision making capacity is impaired, it is desirable that they be supported to make their own decision to the extent they are able.

d) A patient who is deemed not to have capacity cannot either give or withhold consent; therefore a third party must make the decision on the patient’s behalf. Substitute Decision Makers (for example Medical Agents, Enduring Guardian, Guardianship Board or parent if the patient is under the age of 16 years) can decide the ECT treatment for the patient, including refusing treatment.

e) Medical assessment and/or treatment should be provided in the least restrictive way and in the least restrictive environment that is consistent with the patient's proper care and protection, treatment efficacy and public safety.

f) The current ECT provisions in the Act do not permit the use of reasonable force, including restraint, to administer ECT treatment to the patient. This may only be done if the patient also satisfies the requirements of an inpatient treatment order (ITO), which does allow the use of reasonable force to carry the order into effect. This includes consent by the Guardianship Board.

g) The provision of ECT itself is not included in an ITO but is subject to separate considerations under the Mental Health Act (2009) as prescribed psychiatrist treatment.

h) If a patient is considered to have capacity to consent then they must also be considered to have the capacity to refuse treatment.

3.2 Mental Health Act 2009

The provisions relating to ECT are contained in section 42 of the Mental Health Act 2009.

Under the Act, ECT can only be administered to a patient if the following criteria are met:

a) The patient has a mental illness and

b) A psychiatrist has authorised the ECT ie a psychiatrist has examined the patient and believes this treatment is required and

   c) Consent to the ECT has been provided in writing (s42.1).
3.3 Consent is required for ECT

Consent is required prior to the provision of any medical treatment. For ECT, consent must be in writing, witnessed and documented on forms approved by the Minister under the Mental Health Act 2009.

If the patient is capable of giving voluntary and effective consent, the patient’s consent to the ECT/anaesthesia must be obtained in writing prior to the ECT being given. A patient with decision-making capacity can refuse to consent to ECT, a decision which must be respected. If, in these circumstances, a patient refuses ECT then ECT must not be given.

If the patient is incapable of giving consent, that is they do not have decision-making capacity, third party consent is required. Third party consent includes from a legal guardian or Medical Agent (where appointed). A guardian and/or medical agent can refuse to consent to the ECT, and if this is the case, ECT must not be provided because consent has not been obtained.

A parent or a guardian can consent for a child who is under 16 years of age.

If the patient does not have the capacity to consent, and there is no legal guardian/medical agent to make the decision, an application can be made to the Guardianship Board by a medical practitioner or mental health clinician.

Under the Act:

a) Consent to the ECT also includes consent to the administration of anaesthetics for the purposes of the ECT treatment.
   - If the patient is capable of consent however, it may be preferable that consent to anaesthesia is sought from the patient by an anaesthetist who may be able to provide the patient with the best available information regarding the anaesthetic component.

b) Consent to a course of ECT is limited to a maximum of 12 episodes of ECT and to a maximum period of 3 months.

c) Titration sessions of ECT are counted as one treatment in that course of ECT.

d) Any further courses of ECT can be separately consented to after the first course has commenced or is completed, and will commence from the date of that consent.

e) If consent for ECT has been provided by the Guardianship Board on application, this consent may be taken to also be for anaesthesia “consent to the administration of ECT extends to the administration of anaesthetic required for the purposes of the ECT treatment” (section 42(4), Mental Health Act 2009).

f) A course of ECT is considered to be completed once a decision is made to stop treatments, regardless of the number completed on that particular consent. A new consent must be provided before the commencement of another course.

g) A new consent, for further treatments, cancels previous consents. The new consent is valid from the day it is completed.

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1 A legal guardian includes an Enduring Guardian appointed by the patient in an Enduring Power of Guardianship or a Guardian appointed for the patient by the Guardianship Board.
3.3.1 Procedures for obtaining consent for ECT treatment

ECT is a medical treatment which cannot be provided without consent (unless it is an emergency situation). Consent must be in writing and be voluntary, informed and effective.

The clinician has an obligation to ensure the patient, carer, guardian 2 or medical agent has been provided with full information about ECT, and in a format they can understand (Appendix 2), including the implications of not having ECT and other alternatives. This full information must include the patient’s clinical situation in the broader context of their mental health treatment and care plan and all other plans available.

For consent to be valid, informed and effective the patient must have the capacity to make the decision and be doing so free from coercion. These terms are defined below:

**Voluntary:** the decision to consent or not consent to treatment must not be made due to pressure or coercion. This includes pressure by clinical staff, friends or family although a patient may choose to have one or all involved in the decision making process.

**Informed:** the clinician has an obligation to provide the patient, and wherever possible family and carer, with full information in a format they can understand on the available treatment options and benefits and consequences of each option, other alternatives, and the implications of not having ECT.

**Capacity:** the person must be capable of giving consent, which means that they understand the information given to them, can weigh up the information to make a decision and communicate their decision. The patient must understand this information, including the consequences of refusing treatment. To be effective consent, the person should be able to demonstrate in his or her own words understanding of the proposed treatment. Impaired decision-making capacity must not be inferred simply because a patient has a mental illness or from the fact that the patient’s decision is perceived by the clinician/staff as not in their best interests or “irrational” in the sense that it is not a decision that would be made by the majority.

If there are doubts about a patient’s decision-making capacity in relation to ECT it is advisable to seek a second opinion from an appropriately qualified ECT consultant psychiatrist. This process and the reasons for deciding that the patient does not have capacity to make a decision about ECT must be clearly documented in the patient’s medical record.

If a patient is deemed not to have decision-making capacity in relation to ECT and they have a legal representative/s 3, this person/s consent must be sought. A legal representative has the lawful authority to make decisions on the patient’s behalf, including being able to refuse ECT if this was the patient’s expressed wish.

If the patient does not have a legal representative, and it is not an emergency (imminent risk to life or health - see 3.2.3), an application to the Guardianship Board for consent to ECT must be made (see 3.2.4).

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2 A Guardian can include an Enduring Guardian appointed by the patient or a Guardian appointed for the person by the Guardianship Board; or a parent or guardian of a child under 16

3 Legal representative means: a medical agent; Enduring Guardian appointed by the patient; a Guardian appointed for the patient by the Guardianship Board, or a parent or guardian of a child under 16.
3.3.2 Patient’s rights to refuse treatment, including ECT

A patient with decision-making capacity has the right to refuse consent to ECT and can withdraw their consent at any time during the course of ECT treatment (i.e. they can ask to discontinue treatment) even if consent for the whole course of treatment was initially given by the patient.

A patient may have sufficient decision-making capacity to consent to or refuse to consent to ECT even if they have impaired decision-making capacity in other areas such as making financial decisions. Capacity to make a decision is decision specific, not absolute. Where a patient has capacity and makes a voluntary decision to refuse ECT treatment, despite advice from the clinician to the contrary, the decision must be respected even if the treatment is considered life/health-saving by the clinician.

3.3.3 Cultural considerations

There may be specific beliefs or cultural issues around the use of ECT that can prevent patients from accepting ECT as a form of treatment. It is important to consideration be given that cultural issues and the cultural context in which patients consent to or refuse ECT.

Mental health professionals must demonstrate the following specific knowledge, skills and attitudes in meeting the diverse needs of diverse cultural and linguistic groups (National Practice Standards for the mental health workforce (2013)). The Practice Standards outline capabilities that all mental health professionals should achieve. The specific knowledge and understanding, skills and ability, and attitudes and behaviours required of mental health professionals in their work with diverse cultural and linguistic groups are outlined in (Appendix 5)

3.3.4 Advance Care Directive

A competent adult has the right to complete an Advance Care Directive in regards to consent to ECT treatment in accordance with the Advance Care Directives Act 2013.

An Advance Care Directive is a document in which a competent adult can appoint one or more trusted Substitute Decision-Makers (SDMs) to make health care and other decisions on their behalf which apply when the patient’s decision-making capacity is impaired. This also includes decisions about ECT. A person can also write down instructions for their appointed SDMs which they are required to follow if the instructions are relevant and applicable to the decision at hand. This can include written instructions about a patient’s wishes to not receive ECT treatment in the event that their decision-making capacity to consent is impaired in the future. A Substitute Decision-Maker’s decision is as effective as if it were the patient making the decision.

There are three Advance Care Directives that relate to the wishes of patient for ECT treatment:

a) Enduring Power of Guardianship (Guardianship and Administration Act 1993): This document allows a competent adult to appoint one or more enduring guardians to make medical treatment and lifestyle decisions. It also allows a person to record his

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4 Advance Care Directive can be a Medical Power of Attorney or Enduring Power of Guardianship
or her wishes/instructions in relation to lifestyle decisions and medical treatment, including ECT which the Enduring Guardian is required to follow.

b) Medical Power of Attorney (Schedule 1 - Consent to Medical Treatment and Palliative Care Act 1995): This document allows a competent adult to appoint one or more medical agent/s to make medical treatment decisions according to the patient’s expressed wishes, including instructions related to ECT, which the Medical Agent is required to follow.

c) From mid-2014 Advanced Care Directives Act 2013 will be formally proclaimed in South Australia. Existing arrangements made within the above legislation frameworks will continue, but from mid-2014 will be called Advance Care Directives. In addition, the nominated person (previously Enduring Guardian or medical agent/s) will be known as the Substitute Decision Maker/s. The Advance Care Directive Act (2013) allows a person to record his or her wishes/instructions in relation to lifestyle decisions and medical treatment, including ECT, which the Substitute Decision Maker is required to follow.

3.3.5 Emergency situations

In the following limited circumstances ECT can be provided without written consent:

a) A psychiatrist considers that ECT is urgently needed to address an imminent risk to life or health of the patient; and

b) The patient does not have capacity to consent or refuse to consent to ECT; and

c) The risk to the patient is such that there is no time to obtain consent from a legally appointed Substitute Decision Marker; and

d) The patient has not refused ECT previously or in an Advance Care Directive.

The number of emergency treatments without consent should be kept to a minimum and only as a last resort. Authorisation of emergency ECT should occur in parallel to, or be preceded by efforts to obtain third party consent.

A psychiatrist must assess the patient before each emergency treatment, assessing as to whether the patient satisfies the above criteria. The assessing psychiatrist must authorise each emergency treatment, and complete a new Emergency ECT form.

A Notification of emergency ECT Form must be completed by a psychiatrist and a copy sent to the Chief Psychiatrist within 24 hours of the emergency ECT treatment.

3.3.6 Role of the Guardianship Board

The same circumstances must be present when seeking consent to ECT from the Guardianship Board as when seeking consent from the patient/legal representative:

a) The patient has a mental illness and

b) A psychiatrist has authorised the ECT i.e. a psychiatrist has examined the patient and believes this treatment is required.

A mental health clinician or medical practitioner can make an application to the Guardianship Board for consent to ECT in the following circumstances:

a) It is not an emergency situation; and

b) The patient does not have decision-making capacity to consent/refuse ECT; and
c) The patient does not have legally appointed Substitute Decision Marker who can consent/refuse on the patient’s behalf. 

An application to the Guardianship Board for ECT must include a psychiatrist’s supporting opinion that the proposed ECT treatment is necessary and appropriate and is in accordance with accepted clinical practice.

- Consent by the Guardianship Board to a course of ECT is limited to a maximum of 12 episodes of treatment or three months, whichever comes first.

If a patient subsequently regains decision-making capacity during the course of the ECT, then they should be given the opportunity to consent or refuse to consent to further ECT themselves. This upholds the principle of dignity and respect for the individual.

If the patient does not have capacity and a second or subsequent course of ECT is deemed necessary, a further application to the Guardianship Board for consent to ECT is required.

The current ECT provisions in the Act do not permit the use of reasonable force, including restraint, to administer ECT treatment to the patient. This may only be done if the patient also satisfies the requirements of an inpatient treatment order (ITO), which does allow the use of reasonable force to carry the order into effect.

The provision of ECT itself is not included in an ITO but is subject to separate considerations under the Act as highlighted above.

3.3.7 Resolving disputes

Consultation and Peer Support

If a clinician has concerns related to ECT, the patient’s capacity to consent, a decision of a legal representative, or seeking consent from the Guardianship Board, it is recommended that the clinician seek a second opinion in the first instance. This could be through:

a) Clinical Director/Chair - ECT Committee (LHN/Hospital).

b) SA Branch - RANZCP – ECT sub-committee chair.

c) Office of the Chief Psychiatrist.

Legal recourse

The following steps can be taken if the person receiving ECT treatment or another interested party is dissatisfied with the decision of a legal representative to consent to or refuse ECT.

a) In the case of a medical agent(s), an application can be made to the Supreme Court to have the agent(s) decision reviewed.

b) In the case of a guardian/Enduring Guardian of an adult, an application can be made to the Guardianship Board to hear and determine the matter.

c) In the case of a child under 16, whose parents have refused consent to ECT, an application to the Guardianship Board may be made by a medical agent or

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6 Legal representative includes: Enduring Guardian or Medical Agent appointed by the patient; a Guardian appointed for the patient by the Guardianship Board, or a parent or guardian of a child under 16.
practitioner or by anyone with interest in the matter. On the evidence presented, the Guardianship Board may approve the application and override the parent(s) decision.

d) Parent(s) of a child under 16 can appeal to the District Court about the decision of the Guardianship Board to consent to ECT.

e) A person, or other interested party, can appeal to the District Court about a decision of the Guardianship Board to consent to ECT. Under section 67(1) of the Guardianship and Administration Act 1993, anyone who has a proper interest in the matter can appeal. This includes the person to whom the proceedings relate, the person who made the application, and any person who gave evidence at the Guardianship Board hearing. The correct form is FormV1-1, Notice of appeal or Application for leave to appeal. This form must be lodged at the District Court.
Guideline 4 - ECT Facilities

4.1 Background

In the past, ECT was administered predominantly in ‘stand-alone’ ECT suites within psychiatric hospitals. However, ‘mainstreaming’ of mental health services into general hospitals has led to ECT also being administered within the theatre complex of the general hospital in which the mental health service is based.

This section addresses the requirements for both stand-alone ECT suites and ECT administered within a general hospital theatre and clinical areas.

Legislation and professional guidelines governing ECT facilities

The administration of ECT in South Australia is governed by the SA Mental Health Act (2009) and following professional legislations, guidelines and bodies:

a) RANZCP ECT (2013) Position Statement #74 Electroconvulsive Therapy.


c) Australian Council of Operating Room Nurses.

d) Operating Theatre Association.

e) There are specific provisions that cover the administration of ECT within a private hospital, listed in Private Hospitals and Day Procedure Centre Act 1998 No 123, Section 7: Licensing Standards.

f) Other appropriate Health Service regulations

4.2 ECT Facility Design

In stand-alone ECT suites, or where ECT is administered within general hospital theatres and clinical areas, ECT services must be designed in a patient-focused manner that respects the need for autonomy and privacy.

In addition, there must be adequate time allowed for the preparation, administration and recovery from ECT proportionate to the clinical demand for the service, and should include arrangements for emergency ECT when necessary.

All ECT facilities must consist of a minimum of three separate clinical areas:

Clinical Area - Room 1: A waiting area for patients immediately prior to ECT

Clinical Area - Room 2: A treatment / procedure room - The treatment room must comply with the standards for safety as specified in the ANZCA PS55 (2012)

Clinical Area - Room 3: Post Anaesthesia Recovery Room - The recovery area must comply with the standards for safety as specified in the ANZCA PS55 (2012)

Clinical Area 1 – Waiting Room

The waiting room should have with access to a toilet and change area. The waiting area should be quiet and separate from other clinical areas, respect patients’ need for privacy, and accommodate their level of distress.
Clinical Area 2 - Treatment Room

a) A breathing system capable of delivering 100% oxygen both spontaneous and controlled ventilation. An alternative breathing system should be immediately available. Where more than one patient is to be treated, this equipment must be duplicated or there must be in line viral filters (ANZCA PS28 2013).

b) Adequate reserves of oxygen must be available. If a reticulated or index gas connected system is in use, an oxygen failure warning device is necessary. An emergency cylinder supply of oxygen is necessary in the event of a central supply failure.

c) ANZCA guidelines specify that a treatment room should contain a stainless steel sink, drainer, and scrub-up basin. It should also comply with the specifications for cleaning, disinfecting and sterilising reusable medical and surgical instruments and equipment and maintenance of associated environments in health care facilities (ANZCA PS28 2013).

d) Space is also required for a fully equipped emergency trolley, sterile supplies, bed linen, instruments, equipment, and an area that complies with the minimum standards for the safe and proper storage of drugs including provisions for S4 and S8 drugs.

Clinical Area 3 - Recovery Room

a) Patients must not be routinely recovered in the treatment room at the same time as another patient is having their ECT.

b) Recovery from anaesthesia should take place under appropriate supervision by responsible designated nursing staff as specified by the local area and other governing bodies. in a designated area which conforms to ANZCA professional document – Recommendations for the Post Anaesthesia Recovery Room (ANZCA PS4 2006)

c) Contingency plans should exist for the safe emergency evacuation of patients from the operating suite and or recovery areas under adequate medical supervision.

All three separate ECT clinical areas within the facility should include the following:

a) suitable illumination, airflow and/ or air-conditioning that meet the needs for the; telephone and computer facilities to aid communication; and a duress system to obtain assistance in the event of an emergency

b) rooms linked with common doorways so that there can be a smooth movement from one area to the next before leaving the suite. The doors and corridors need to be wide enough to accommodate trolleys and hospital beds.

c) be large enough to accommodate the number of people who are involved in the procedure. The size may vary dependent upon the flow of patients through the service. Services with a high volume of patient care will need more space for the treatment and recovery areas than those sites that are of low volume/ occasional users.

4.2.1 Stand-alone ECT Suite is a unique anaesthetising location, in that:

a) Only a single, standardised procedure is carried out

b) The duration of anaesthesia required is invariably brief

c) Although treatment may be urgent, it is never an emergency in a medical sense
d) Infants are not treated

e) Apart from intravenous injections, no invasive techniques are used

f) Anaesthetic technique does not usually involve administration of volatile agents.

Under these circumstances, apart from the ECT apparatus and its accessories, which should comply with RANZCP guidelines, other necessary equipment required in a stand-alone suite includes:

a) A range of intravenous cannulae, taking into account the preferences of the attending anaesthetists.

b) Monitoring apparatus capable of measuring and displaying:
   - Non-invasive arterial blood pressure (NIBP)
   - Oximetry
   - Three-lead electrocardiography.

The device(s) must be capable of providing a print-out which is incorporated into the anaesthetic record.

Devices for management of the airway, including:

a) A range of oropharyngeal and nasopharyngeal airways

b) A range of laryngeal mask airways

c) A range of (cuffed) endotracheal tubes

d) A laryngoscope with adult and extra-large blades

e) A flexible bougie/introducer

f) Lubricant.

g) Suction accessories, including single-use catheters and handpieces.

h) Mouthguards.

i) Plastic face-masks for administering high concentrations of oxygen to spontaneously breathing patients, with or without nebulisation.

j) Gauzes, dressings and adhesive tapes.

k) Venous tourniquets.

Section 7 – Anaesthesia for ECT - provides more information on equipment for anaesthesia.

4.2.4 ECT administered at other locations

In rare circumstances it may be necessary to administer ECT in a location other than a stand-alone ECT suite or a general hospital theatre, for example when patients have a serious physical illness that requires treatment elsewhere within a hospital. Decisions on such treatment must take account of the specific circumstances and be made in consultation with other senior clinicians involved in the patient’s care.
Guideline 5 - Preparing the patient for ECT

5.1 ECT administered within a general hospital theatre

5.1.1 Pre-ECT work up

5.1.1.1 History, physical examination and baseline cognitive and symptom measures

A comprehensive medical history and physical examination are the key components of a pre-ECT work up. These should focus on the neurological, cardiovascular and respiratory systems and include checking dentition.

It is recommended that pre and post ECT measures are performed across the domains of cognitive functioning, psychiatric symptomatology and quality of life.

a) A baseline cognitive examination is imperative. Some instruments currently available include: The Folstein Mini Mental State Examination (MMSE), Montreal Cognitive Assessment (MOCA) and Addenbrooke’s Cognitive Examination (ACE-R). For people with limited literacy skills or for whom English is not their first language, the Rowland Universal Dementia Assessment Scale (RUDAS) is recommended.

b) Routine use of an instrument to rate symptoms before and after a course of ECT is also recommended. Some useful questionnaires include: the Montgomery-Asberg Depression Scale (MADRS), the Geriatric Depression Rating Scale (GDRS), the Hamilton Depression Rating Scale (HDRS), the Beck Depression Inventory (BDI) and the Quick Inventory of Depressive Symptomology (QIDS). General psychopathology can be assessed by the Clinical Global Impression Scales (CGI-I, CGI-S) and Brief Psychiatric Rating Scale (BPRS).

c) In order to gain further information about the impact of ECT on patients’ overall wellbeing, a Quality of Life measure is recommended (Quality of Life Enjoyment and Satisfaction Questionnaire-Short Form (Q-LES-Q-SF)).

5.1.1.2 Investigations

a) Essential investigations performed prior to ECT include an ECG and serum electrolytes. These investigations provide important information about the risk of cardiac arrhythmias that is not always available from the patient’s history and examination.

b) Suxamethonium increases serum potassium, particularly in patients with pre-existing muscle damage. If already elevated, dangerously high levels can result, with the risk of a potentially fatal cardiac arrhythmia.

c) Low potassium levels potentiate the effect of suxamethonium, possibly causing prolonged apnoea. Serum potassium should be corrected prior to the commencement of ECT.

d) Hyponatraemia predisposes to a lowered seizure threshold and increased seizure duration, therefore serum sodium should be normalised before ECT if possible.

e) A chest X-ray is not routinely required but should be performed if clinically indicated.

f) Blood screens such as a full blood count, renal function, fasting glucose and thyroid function tests can be organised if clinically relevant.
g) A cerebral CT is not an essential routine investigation prior to ECT, but should be considered in patients with abnormal neurological examinations or when there is a clinical indication or concern of an intracranial space-occupying lesion, raised intracranial pressure or recent cerebrovascular accident.

5.1.1.3 Consultations with other specialties

a) A pre-ECT anaesthetic assessment is mandatory. Patients should be assessed prior to the start of a treatment course, rather than on the day of the first scheduled ECT, in order to allow adequate time for further investigations and/or consultation.

b) Opinions may be sought from other specialists including respiratory, cardiology, ophthalmic and neurology specialists if clinically indicated. It is important to be specific in the questions asked of the consultant: the question should not be, “Is it safe to give this person ECT?” As there are no absolute contradictions for ECT, the decision to use ECT is a balance of risks and benefits. A good approach is to ask:

- What is the person’s medical/surgical/anaesthetic condition?
- What is the risk involved in giving this person a course of ECT?
- What interventions could be made to reduce this risk?

c) Many non-psychiatric consultants are unfamiliar with modern ECT practice and the physiological changes that occur during the stimulus, seizure and recovery period. It is often necessary to impart this information so the consultant can offer a more informed opinion.

d) Once specialist consultations are completed, the treating psychiatrist weighs up the medical risks of proceeding with ECT, versus the risks of not treating with ECT, to determine the treatment recommendations then discussed with the patient and their Substitute Decision Maker.

5.2 Medications and ECT

The following general principles apply when reviewing medication prior to a course of ECT:

a) Give oral medications at their usual time up to one hour prior to each treatment with a sip of water, especially medications that will make ECT safer. Such medications might include antihypertensives, steroids, anti-oesophageal reflux agents, anti-anginals and antiarrhythmias.

b) Non-oral medications, such as bronchodilators, eye drops and topical medications, should be administered as usual and not be withheld prior to treatment.

c) Avoid, as far as possible, medications that will increase the risks of ECT or make it less therapeutic. Drugs that require special consideration include theophylline, diuretics, hypoglycaemics, benzodiazepines, lithium carbonate and anticonvulsants.

5.2.1 Antidepressants

There may be little benefit continuing a medication, to which the patient has not responded over comprehensive trials of the drug. Appropriate withdrawal and planning for another antidepressant after ECT should be considered in this case.

The majority of patients with a major depressive episode who respond to ECT are likely to relapse within six months without continuation pharmacotherapy. It is standard practice to commence an antidepressant, usually from a different class to that used prior to the ECT course. This is usually initiated during or just prior to the end of the ECT course.
Generally, antidepressants have been administered safely during ECT, through practitioners should be aware of the following:

a) There have been reports of adverse cardiac effects, confusion and excessive sedation in patients taking tricyclic antidepressants during ECT.

b) There are also reports of prolonged asystole and hypotension in patients taking venlafaxine during administration of ECT, However, a recent study indicated that notriptyline and venlafaxine were not associated with an increase in cardiac events compared to placebo (Sackeim et al, 2009).

c) Monoamine oxidase inhibitors with ECT have been associated with blood pressure changes, hyper-reflexia and seizures.

d) SSRIIs are generally considered safe during ECT.

e) The risks and benefits of concomitant antidepressants should be considered and discussed with the anaesthetist.

5.2.2 Antipsychotics

a) The use of antipsychotics during a course of ECT is common. Provided appropriate precautions are taken, it should be a safe combination.

b) There have been several reports of the safe use of clozapine with ECT; however there may be a risk of prolonged seizures and confusion as clozapine lowers the seizure threshold.

c) Typical antipsychotics may induce ECG abnormalities such as prolonged QTc interval.

5.2.3 Lithium carbonate

a) ECT can increase the permeability of the blood brain barrier and allow more Lithium into the brain at a constant serum level. Given lithium’s narrow therapeutic index this can contribute to toxicity, particularly in high therapeutic serum concentrations. While concurrent treatment with lithium is well tolerated by some patients, there are several reports of severe confusion resulting from ECT administered to patients taking lithium, particularly when serum levels are at the higher end of the therapeutic range.

b) Where possible, it is advised to suspend lithium prior to a course of ECT. This is usually practical when lithium is being used to augment an antidepressant.

c) The risks and benefits of suspending lithium in a patient with bipolar disorder, where there is a risk of a manic swing if lithium is withdrawn, are more complex and need careful consideration.

d) If the decision is to maintain the person on lithium during the ECT course, then the evening dose prior to each ECT treatment must be omitted and, the morning dose delayed until after recovery from the treatment. Alternatively, a lower dose and serum concentration at the lower end of the therapeutic range can be used during ECT.

5.2.4 Anticonvulsant mood stabilisers

Anticonvulsants increase the seizure threshold and reduce seizure expression and duration, and may reduce the efficacy of ECT. Where possible, an anticonvulsant being used to augment an antidepressant should be withdrawn prior to the ECT course commencing.
a) In bipolar disorder, the clinical decision on whether or not to withdraw the anticonvulsant must consider the balance between the risk of manic relapse and the potential adverse effects on the seizure.

b) If the anticonvulsant is continued, it may be possible to reduce the dose to the lower end of the therapeutic range. Furthermore it is recommended to withhold the evening dose prior to each ECT treatment and to delay the morning dose until after recovery from the treatment.

c) This approach should also be considered where an anticonvulsant is being used for a seizure disorder in consultation with the treating neurologist. As ECT has a potent anticonvulsant effect, the dose of anticonvulsant may be reduced further as the course proceeds, but must be restored to pre-ECT levels at the completion of the course.

5.2.5 Benzodiazepines

a) The concurrent use of benzodiazepines may result in failure of treatment and should be avoided. Use of benzodiazepines (particularly those with a longer half-life), during a course of ECT may:
   - increase the seizure threshold
   - increase the risk of cognitive impairment, and
   - reduce the seizure length and efficacy.

If there is a risk of withdrawal seizures with abrupt cessation, the dose can be tapered and ceased early in the course as the anticonvulsant effect of ECT will mitigate against this risk.

b) Non-benzodiazepine hypnotics act in similar ways to benzodiazepines and can have similar detrimental effects on ECT if given to the patient close to an ECT treatment.

5.2.6 Diabetic medication

Depression, particularly with melancholic symptoms, can destabilise diabetic control.

a) As depression improves through the course of ECT, the dose of diabetic medication may need to be reduced to prevent hypoglycaemic episodes.

b) Blood sugar levels should be monitored closely during an ECT course as dosing of oral hypoglycaemics needs to take into account fasting prior to ECT and hyperglycaemia secondary to the seizure.

c) On the morning of each ECT treatment, oral hypoglycaemics should be withheld until after treatment, unless instructed otherwise by the anaesthetist.

d) For patients using insulin, it is advisable to consult an endocrinologist or anaesthetist about management of their treatment on the morning of ECT.
   - The patient should be placed first on the list, and returned to the ward as soon as practical to have breakfast and their diabetic medication.

5.2.7 Theophylline and bupropion

Theophylline and bupropion can increase seizure duration. Where possible, they should be ceased prior to the ECT course commencing.
5.2.8  Diuretics
Diuretics should be avoided on the morning of ECT to avoid post-ictal urinary incontinence.

5.2.9  Acetylcholinesterase inhibitors
a) Acetylcholinesterase inhibitors may potentiate the bradycardia from the electrical stimulus and suxamethonium.

b) They can potentiate the muscle relaxant effect of suxamethonium, particularly with rivastigmine which also inhibits butyryl cholinesterase, the enzyme which metabolises suxamethonium.

c) There are several case reports of the safe use of donepezil and rivastigmine during ECT. The continued use of these drugs should be discussed with the anaesthetist.

d) There are also case reports of acetylcholinesterase inhibitors having a protective effect against ECT-induced cognitive impairment, but the usefulness of this approach remains uncertain.

5.3  Smoking
Patients should be strongly advised not to smoke on the morning of treatment to reduce the risk of anaesthetic complications. A comprehensive nicotine replacement and smoking cessation treatment should be offered to ECT patients.

5.4  Substance Use
Monitoring of patients substance use should be considered if their dependence or abuse is likely to lead to intoxication during ECT. This may be particularly relevant for outpatients receiving ECT.
Guideline 6 - Administration of ECT

6.1 Patient preparation
Patients are to be received as calmly and courteously as possible into the treatment area. All procedures are to be explained to the patient as they are performed, in a reassuring manner.

The final checks required include:

a) Identity,

b) A confirmation that they consent to continuing treatment, and

c) Confirmation of recent voiding of urine, and that the patient has fasted.

The treatment room staff are to confirm:

a) For self-consenting patients: the consent form is valid (see Consent and Legal Framework section)

b) For third party consent or emergency ECT: that the documentation (including valid consent or emergency ECT treatment order) is signed and dated by the patient’s treating doctor and fully compliant with the SA Mental Health Act 2009.

Some of the following procedures may be done before the anaesthetic is administered:

If using the isolated limb technique to monitor motor movement:

a) The sphygmomanometer cuff should be applied to the right calf and not inflated until the anaesthetic induction agent has been given.

b) This technique is recommended when performing a stimulus titration procedure (see below) to assist in the detection of a motor seizure and seizure threshold, but is optional under other circumstances.

To ensure the quality of the EEG recording

a) The skin beneath the recording electrodes must be adequately prepared. This can be achieved using a moistened gauze swab.

b) Care must be taken to avoid skin damage.

A standardised approach for applying the EEG recording electrodes should be used in order to facilitate the comparison of EEG recordings across the course of treatment.

a) For 2-channel EEG recording, channel 1 electrodes are generally applied to the left hemisphere and channel 2 electrodes to the right hemisphere, with positive electrodes placed on the forehead and negative electrodes on the mastoid.

b) It is useful to use the same placement for each treatment to enable meaningful comparison of tracings and assist with trouble shooting.

The recording electrodes are to be applied as follows:

a) The anterior electrodes are placed on the forehead, 2.5cm above the midpoint of the eyebrow (mid-pupillary line),

b) When bifrontal treatments are being given, the anterior recording electrodes are moved medially, either side of the midline (see below); the posterior recording electrodes are placed over the mastoid process, over bone, high enough to avoid being placed over the sternomastoid muscle – this will avoid both muscle artefact and
any cardiac artefact that is transmitted along the carotid artery.

c) The skin beneath the treating electrodes is to be prepared in the same way as described above for the recording electrodes.

d) The use of abrasive materials to clean the skin is not recommended because of the possibility of electrical burns occurring following overly zealous cleaning.

6.2 ECT equipment

All sites where ECT is performed must be equipped with the following:

a) A modern ECT device with the following features:
   • A constant current, bi-directional brief pulse square wave output
   • An EEG monitor with at least two channels of monitoring displayed on a paper print-out or capacity to save electronically.
   • Capable of delivering a charge of up to 1008 millicoulombs
   • Capable of delivering a variety of stimulus parameters, including brief pulse widths of 1.0 msec, down to Ultra brief pulse widths of at least 0.3 msec
   • A method of measuring circuit impedance
   • A safety mechanism for the treatment button to prevent accidental discharge
   • A maintenance program conducted by authorised personnel which complies with SA Health standards for medical equipment.

b) Disposable EEG recording electrodes.

c) Treating electrodes with a minimum diameter of 5cm. These may be metal or disposable adherent electrodes

d) Conductive gel or solution.

e) A method of measuring muscle relaxation prior to delivering the stimulus. This may be a patellar hammer for detecting the abolition of the patellar reflex or an electronic nerve stimulator.

f) Cardiovascular and other monitoring equipment as specified in Section 7 - Anaesthesia for ECT.

6.3 Treatment Electrodes

Depending on the technique used, the treating electrodes may be applied (Figure 6.1) either before the anaesthetic is administered (with appropriate reassurance to the patient) or afterwards.

a) Acceptable techniques are:
   • Metal electrodes secured by a rubber headband
   • Metal electrodes attached to hand-held electrodes
   • Disposable adherent non-metal electrodes
   • A combination of the above

b) To ensure low impedance at the skin-electrode interface and to avoid skin burns, the electrodes must be 5cm in diameter and adequate conducting gel must be applied between the electrode and the skin.

c) If using disposable adherent electrodes, it may be necessary to apply a small amount of conducting solution or gel to reduce the impedance to acceptable levels.
d) Care must be taken to ensure firm contact with the skin with all types of electrodes and techniques to ensure low impedance and to avoid skin burns. Cleansing the skin with a non-irritating agent (water is best) to remove local sebum which acts as an insulator is recommended.

e) It is essential when using metal electrodes to use a flat electrode on a flat skull surface (i.e. temporal placement) and a concave electrode on a rounded surface (i.e. vertex and bifrontal placements) to maximise skin contact and reduce the risk of burns.

6.4 Electrode placement

There are three types of electrode placement illustrated in Figure 6.1, which can be used depending on individual patient circumstances:

Figure 6.1

1. Unilateral placement – Brief Pulse:

   a) The available evidence suggests that provided the dose is at least 3 times threshold, the efficacy of standard pulse width for brief pulse (i.e. pulse width 1.0 ms) right unilateral (RUL) ECT is acceptable and is associated with less cognitive impairment than bitemporal placement.

   b) The evidence suggests that for standard pulse width at dosage levels approaching 6 times threshold, the efficacy is increased and may equal the efficacy of bitemporal ECT, though at very high doses the cognitive side-effect advantage may be diminished.

   c) More recent studies of ultra-brief ECT using a ultra-brief pulse width (0.3 msec) at 6 times seizure threshold indicate that the cognitive side-effects are reduced). However, in ultra-brief ECT the speed of response may be slower, efficacy less robust and one or two more ECT treatments required (Loo et al 2013).

2. Bilateral (bitemporal) Placement:

   a) Bitemporal placement is generally regarded as the most effective form of ECT, but it is also associated with the greatest degree of cognitive impairment, particularly retrograde memory loss, which may not be fully reversible.
b) Its use should be restricted to the following situations:
   - Where other electrode placements have been ineffective, or
   - When there is some urgency to achieve a rapid response (e.g. in a life-threatening situation) or
   - When the patient’s history indicates a previous poor response to unilateral ECT and a good response to bitemporal ECT.

c) For bitemporal ECT the effective dose is 50-100% above threshold. Doses higher than this may produce excessive cognitive side-effects and should only be considered where an urgent clinical response is needed, or, where the treatment response is inadequate at the lower dosage.

3. Bifrontal placement:
   a) Bifrontal placement has been less studied than the other electrode placements, but there may be less cognitive impairment compared to bitemporal (Dunne & McLoughlin, 2011).
   b) Further research is needed to establish its therapeutic role, but individual patients may well benefit from using this electrode placement.
   c) For example, a patient who has not responded to unilateral ECT, who was switched to bitemporal ECT and had unacceptable cognitive side-effects, may achieve recovery with bifrontal placement and with less cognitive problems. When using bifrontal ECT, accurate placement of the electrodes avoiding placement over the Frontal Sinus is important to ensure low seizure thresholds.

Electrode placement – recommendations

a) For most patients ECT is commenced with right unilateral placement brief pulse at a dose of 3-6 times seizure threshold for standard pulse width (1.0ms), or 6 times seizure threshold for Ultra brief (0.3ms).

b) Bilateral ECT is given at 1.5 times seizure threshold with bitemporal or bifrontal electrode placement as indicated (see Figure 6.1).

c) Right sided treatment avoids direct stimulation of the dominant hemisphere. Given that a high proportion of left-handed people have either left-sided or bilateral cerebral dominance, right unilateral placement should be used initially.
   - If this is associated with an unusual degree of cognitive impairment, especially early in the treatment course, the electrode position should be changed to either left unilateral or alternatively bifrontal placement, thereby avoiding stimulation of both temporal lobes.

d) If after 6 treatments of an adequate dose for standard pulse width unilateral ECT or after 6-8 treatments for Ultra brief unilateral ECT, there is an inadequate response, then options are as follows:
   - Dose relative to seizure threshold may be increased, especially if there has been a decline in EEG quality in standard pulse width ECT.
   - Unilateral Ultra brief ECT can be changed to unilateral standard pulse width ECT. Note that some patients may not respond to treatment with unilateral ECT and will require a switch to bifrontal or bitemporal ECT.
   - Electrode placement can be changed to bifrontal or bitemporal ECT. If there is concern about excessive cognitive impairment with bitemporal placement, bifrontal placement is preferred.
e) If, after switching from standard pulse width unilateral ECT to bitemporal placement due to a failure of clinical response, there is excessive cognitive impairment, it is not appropriate to return to unilateral treatment as it has already proven to be ineffective.

f) However, if the switch was to increase the rate of clinical response and cognitive impairment develops, then a return to unilateral electrode placement could be considered.

g) Alternatively, reducing the frequency of ECT sessions or switching to bifrontal ECT may be considered.

**Electrode placement – positions**

1. **Right unilateral ECT:**
   The correct position is the D'Elia position (Figure 6.1).
   
   a) The temporal electrode (flat) is placed over the right temporal fossa, with the centre of the electrode 2.5cm above the midpoint of a line drawn between the tragus and the outer canthus of the eye.
   
   b) The centre of the second electrode (concave) is placed slightly (1cm) to the right of the vertex, which is at the intersection of the line drawn between the nasion and the inion (occipital process), and the line drawn between the tragus of each ear.

   *Note:* The vertex is not the crown, which is more posterior. The D'Elia position directs the current across the motor cortex, the area of the cortex with the lowest seizure threshold. For left unilateral ECT the same positions are used, but on the left side of the head.

2. **Bilateral (bitemporal) Placement:**
   a) Each electrode (flat) is placed in the temporal fossa bilaterally, as for the unilateral placement.

3. **Bifrontal ECT:**
   a) The anterior EEG recording electrodes should be moved medially, to approximately 1cm either side of the midline, to allow room for placement of the treating electrodes.
   
   b) Concave metal electrodes or adherent disposable electrodes are to be used.
   
   c) The midpoint of each treating electrode is placed 5cm above the outer canthus of the each eye, in a parasagittal plane (Figure 2).
   
   d) A small mark made with a washable marker can be placed at the correct site to guide the electrode placement.

   *It is important to note:* Care must be taken to avoid any contact between the treating electrodes and the EEG recording electrodes, and that there is no excess conductive gel creating a short circuit of the current across the forehead. **Skin burns may occur if the electrodes are placed too close together.**

**6.5 Dosage**

It is now well established that for brief pulse ECT to be effective, the electric charge must be at least 3 times above seizure threshold for standard pulse width unilateral ECT, 6 times seizure threshold for ultra-briefunilateral ECT and 1.5 times threshold for bitemporal ECT.

   a) The required dosage above threshold for bifrontal ECT appears to be similar to bitemporal ECT.
b) In particular, it has been shown that for unilateral ECT, doses close to threshold are ineffective. This means that in order to be sure that a patient is receiving an adequate dose; the patient’s seizure threshold needs to be determined.

Therefore, the preferred technique is to establish the individual seizure threshold by using a stimulus dose titration method at the first session (Appendix 4):

a) Subsequent treatments should be given at above threshold doses (at least 3 times for standard pulse width unilateral ECT, 6 times for Ultra brief unilateral ECT and 1.5 times for bitemporal and bifrontal placements).

b) The main disadvantage of the titration procedure is that the patient will usually receive one, two or three sub convulsive stimuli, with the risk of bradycardia or asystole. In patients with significant cardiac risk factors, this can be prevented by pre-medication with atropine or glycopyrrolate.

The other generally accepted method of dosing for standard pulse width ECT is a fixed dose for all patients, regardless of individual thresholds. This is a simpler technique, which may be more suitable than the titration technique in some facilities. However, this is not considered to be best practice and has not been used with Ultra briefECT.

a) One approach is to calculate the dose according to the age of the patient that is, the dose (percentage of output on Thymatron, where 100% = approximately 500mC) is set to the patient’s age (unilateral) or half the patient’s age (bilateral).

b) The main disadvantage of this approach is that it is not possible to know the patient’s seizure threshold and therefore to know that the dose is sufficiently above threshold to ensure adequate efficacy, especially for unilateral ECT.

c) This approach is being used less in favour of stimulus dose titration.

6.5.1 Dosage increases during treatment

a) During a course of ECT the seizure threshold may rise at a rate which varies considerably between individuals. The rise in the seizure threshold occurs less often with many RUL ultra-briefECT

b) In order to ensure that the dose remains adequately supra-threshold, it is usually necessary to either increase the dose, or re-titrate during the course.

c) The decision to increase the dose or re-titrante is based on changes in the quality of the EEG during the course.

d) As the threshold rises, continuing with the same dose means that treatment is occurring at a lower dose relative to threshold and the EEG quality deteriorates. This is the signal to increase the dose according to the dosage table as per Appendix 5.

e) It is necessary for the ECT practitioner to examine the previous EEG tracings in order to detect changes in the quality and to therefore adjust the dose. This action could be done either prior to each treatment or after a treatment taking into context all factors in order to recommend the next dose level.

f) Note that ictal EEG appearances can vary considerably between individuals. Older patients and those receiving Ultra briefECT, in particular, ictal EEGs may be of poor quality, even at high supra-threshold doses.

g) If propofol is used as the anaesthetic agent it leads to ictal EEG’s of lower quality than with thiopentone. Avoidance of switching anaesthetic agents through the course of ECT is therefore recommended.

h) The decision to increase the dose, or re-titrante may also be based on an assessment of the patient’s clinical progress, independent of or in conjunction with the EEG morphology.
i) This may be the preferred method in those situations where EEG morphology is poor despite dose increases or is otherwise unreliable as an indicator of dose adjustments.

j) If extraneous factors affect the seizure threshold e.g. medications stopped or started then a re-titration using stimulus dose titration can inform the clinician of the new seizure threshold.

6.5.2 Pulse width

The ECT device in use should allow for the electrical stimulus to be delivered at varying pulse widths.

a) The device may allow for the operator to set the individual treatment parameters (e.g. some MECTA models) or the parameters may be pre-programmed (e.g. Thymatron).

b) The most commonly recommended standard pulse width for all electrode placements has traditionally been 1msec and most published efficacy studies have utilised 1msec or higher.

c) More recent studies have examined Ultra brief pulse widths of 0.3 msec and have demonstrated that for unilateral ECT, the associated cognitive impairment is significantly reduced compared to 1msec pulse widths.

d) Efficacy outcomes are less consistent between studies, with some finding a slower speed response for Ultra brief (Sackeim et al, 2008; Loo et al, 2007; Loo et al, 2008; Sienaert et al, 2009; Loo et al, 2012; 2013). Whether there is some loss of efficacy needs to be clarified with further research.

e) For bilateral placements the studies looking at Ultra brief have been less conclusive. Until further studies are available, Ultra brief temporal and bifrontal ECT should not be used routinely.

f) If unilateral Ultra brief ECT is to be used it is recommended that the electrical dosage is at least six times seizure threshold.

A titration procedure will be necessary to enable accurate calculation of the supra-threshold dose. It is necessary to ensure that the ECT device can deliver small dosage increments in the low dose range.

a) For example with the Thymatron device the programme needs to be adapted to allow dosage increments of 1% intervals between 1% and 10% (all new Thymatron devices have this function as standard). This is because, unlike 1msec pulse width, the seizure threshold with Ultra brief unilateral ECT is generally very low, e.g. 10-20 millicoulomb (2-4% in the Thymatron system).

b) Some units have used a pulse width of 0.5 msec as standard for all electrode placements and it is noted that the manufacturers of the Thymatron Series 4 device recommend that the 0.5 msec pulse width programme be used for all patients.

Note: There are no published ECT efficacy studies that have compared ECT given at 0.5 msec pulse width with ECT given at other pulse widths. So there are no data available to indicate the efficacy and side effect profile of 0.5 msec pulse width ECT.

6.5.3 Spacing of treatments

ECT is usually given two or three times per week in an acute treatment course. These treatments should be spaced as evenly as possible across the week.

a) The literature on the relative benefits of twice versus three weekly treatments suggests that the total number of treatments required is less with twice weekly ECT, but that the duration of the treatment course may be slightly longer (for review and meta-analysis see Loo et al, 2010; Charlson et al, 2012).
b) In patients who are particularly susceptible to cognitive side-effects, e.g. those with pre-existing cognitive impairment, or where significant cognitive impairment or a rapidly rising seizure threshold becomes evident during the treatment course, slowing ECT sessions to twice weekly is often beneficial.

c) For patients with rare severe and life threatening clinical states e.g. malignant catatonia, ECT may be introduced with closer spacing between treatments (i.e. successive days) to achieve a rapid response and then the spacing resumed at 2 or 3 per week.

6.6 Outpatient ECT

A number of criteria should be satisfied before patients are offered ECT as outpatients.

The treating clinicians should be confident that the patient:

a) Will not drive or do anything else hazardous on the day of treatment.

b) Is under the continuing care of a psychiatrist who is reviewing their progress at an appropriate frequency, prescribing their treatment, and, ensuring legal requirements have been complied with.

c) Can be present at the appropriate section of the hospital where ECT is to be administered before the scheduled time of treatment.

d) Will reliably fast for a specified duration (for example, eight hours) before the scheduled time of treatment and administration of the anaesthetic (refer to Section 7.4).

e) If required, will take essential medication as directed (for example, anti-arrhythmic and antihypertensive medication) at the usual time with only a sip of water.

f) Will have a reliable person to take them home (when the patient has been assessed as fit to leave under local health service protocols) after treatment and supervise them as directed.

g) Has access to a clinician who can reassess their physical condition should an inter-current illness arise that could affect the efficacy of ECT and/or the decision to provide ongoing ECT.

In addition, the patient should be well enough to be managed in the community setting in terms of the possible risks resulting from their primary mental illness.

6.7 Clinical monitoring over the treatment course

The effects of ECT on psychiatric symptoms (such as mood and psychotic symptoms) and side-effects (both cognitive and non-cognitive) should be carefully monitored over the ECT treatment course, to allow adjustments of treatment as necessary, objective assessment of outcomes and cessation of treatment once the target symptoms are resolved.

As well as frequent clinical assessments (at least twice per week during an acute course of ECT), the use of structured rating scales is recommended, administered prior to commencing ECT and at the end of the treatment course.

Regular physical examination must occur monitoring the patient for inter-current illness or physical complications from ECT that may impact on the risk of providing ongoing ECT.

6.8 The ECT procedure

The ECT practitioner should greet the patient and provide reassurance.

6.8.1 Checking process

a) The treatment orders, including electrode placement and dose are to be checked.
The dose should then be set on the machine.

b) Before the patient is anaesthetised, a ‘team time out’ during which the ‘Correct patient, Correct procedure, Correct site’ (TeamSTEPPS 2008) is to be observed. In the case of ECT the check needs to be ‘Correct patient, Correct electrode placement, Correct dosage’.

c) This checking process is to be conducted jointly and simultaneously by the ECT practitioner, the ECT nurse and recorded as completed. The anaesthetic can then be given.

d) If using the isolated limb technique to monitor motor seizure, the cuff should be inflated to 40% above systolic blood pressure just prior to the administration of the muscle relaxant.

If the recording and treating electrodes are not already in place, they should now be attached and the following procedures observed:

- **Test ECG equipment**
- **Perform baseline measurements on EEG (thymatron)**

1) The anaesthetist inserts the mouthguard.

2) Check impedance: This may be done automatically (for example, MECTA devices) or manually (Thymatron). The static impedance level should be below the machine’s maximum limit (Mecta 5000 ohms, Thymatron 3000 ohms). If it is too high the following steps are required:
   a) Ensure that the treatment cable is connected to the treatment electrodes and to the ECT device.
   b) Ensure that the electrodes are firmly against the skin and that there is sufficient conductive gel – add more gel if needed.
   c) If using disposable adhesive electrodes, a small amount of conductive solution may need to be placed in the centre of the electrode which is then replaced and held firmly with a ‘dummy’ electrode if necessary.
      i. **MECTA device**: If the impedance cannot be reduced below the machine’s maximum limit, the machine will not discharge and treatment cannot proceed.
      ii. **Thymatron device**: If using the Thymatron device, treatment can safely proceed but by Ohm’s Law, the dose delivered will be less than the dose required, as the voltage increase needed to overcome the high impedance is capped for safety reasons. Generally it is better to proceed with treatment rather than abandon the procedure.
      iii. With Thymatron for dosing above 100% it is necessary to have impedance levels below 1500 to ensure delivery of the full dose

3) Check with the anaesthetist that the patient is fully anaesthetised, and that adequate muscle relaxation has been achieved and that the bite block has been inserted. If so, proceed with treatment by lifting the safety guard and pressing the treatment button, which then needs to be held until the discharge is complete.

4) The duration of both motor and EEG seizure are to be observed and recorded. The quality of the EEG seizure should also be recorded and compared with previous tracings so as to assist in guiding the dose for the next treatment.

5) If a titration procedure is being performed, the initial dose should be as determined by the titration chart which is appropriate for the pulse width program being used (Appendix 4).
   a) If a seizure (defined as a generalised motor seizure or definite EEG seizure of any
length or quality, with or without visible motor seizure) is not elicited then the dose should be increased by one level as indicated on the chart and the patient re-stimulated.

b) This should be repeated until a seizure is elicited, provided that no more than four stimuli are delivered at one session and that there are no anaesthetic or medical issues which would place the patient at unreasonable risk by continuing.

c) A stimulus which has failed to elicit a seizure can be followed by a repeat stimulus without delay, as there will be no refractory period.

If a threshold seizure is elicited at the first, second or third stimulus, a further treatment stimulus at the appropriate supra-threshold dose may be given depending on:

a) The risk-benefit analysis, taking into account the severity of the patient’s psychiatric condition, co-morbid medical issues and the anaesthetist’s assessment of the patient's suitability to proceed.

b) Generally, re-stimulation at a supra-threshold dose within the titration session is more critical for unilateral than bilateral ECT. If a treatment stimulus is to be given, a period of 60 – 90 seconds delay is required between stimuli to prevent re-stimulation during the post-seizure refractory period.

6) In the case of a missed seizure (except during a titration procedure)

a) The dose should be increased by one level and the patient immediately re-stimulated.

b) The operator should also check that the electrode placement is correct.

c) If the seizure is again missed, the treatment session should end and prior to the next scheduled treatment the patient should be assessed for potential causes of the missed seizure, such as the inappropriate administration of anti-convulsant drugs.

7) If a patient has repeated missed seizures or persistently poor quality EEG recordings despite adequate dose increases:

a) Consideration should be given to employing methods to enhance seizure production, such as hyperventilation, changing the type or dose of the anaesthetic agent, or

b) Augmenting the anaesthetic with remifentanil in order to further reduce the dose of the main anaesthetic induction agent. The use of augmentation strategies such as theophylline or caffeine is not recommended because of medical risk.

c) Consider using Ultra briefpulse width right unilateral which is more efficient at producing seizures.

d) Poor quality EEG’s are expected with Ultra briefPulse width RUL ECT

8) In the case of a prolonged seizure (greater than 180 seconds) the seizure should be terminated by the anaesthetist, using an appropriate pharmacological intervention.

a) In the rare instance that this fails to terminate the seizure, the appropriate management is to re-stimulate the patient at a higher electrical dose.

b) Prior to the next scheduled session, the patient’s neurological status and medical history as well as the current medications should be reviewed to eliminate any potential cause for a prolonged seizure. It should be noted that healthy young patients will sometimes have prolonged seizures.

c) If a patient has more than one prolonged seizure, then treatment should be suspended until there has been a thorough neurological review.

Provided that no neurological or other cause has been found, the correct procedure at the following treatment session is to increase the dose by one level and continue treatment.
a) The higher dose is most likely to prevent a prolonged seizure, as the most common cause of prolonged seizure is the stimulus dose at or near seizure threshold.

a) It is not appropriate to reduce the dose in subsequent treatments as this may produce a missed seizure, another prolonged seizure, or may lack efficacy.

6.9 Information for patients
Information to be given to patients about ECT treatment (regarding pre and post treatment care) (Appendix 2).

6.10 Records
The patient’s medical records must include:

a) Continuing patient consent to treatment (Information and Consent Form ECT MHA 2009)

b) Results of an appropriately comprehensive physical examination, investigations and/or anaesthetic review

c) Any side-effects resulting from ECT

d) Results of any cognitive testing and symptom measures.

e) The ECT procedure details are recorded including:
   • Stimulus dose.
   • Electrode placement.
   • Pulse width.
   • Medication used.
   • Seizure quality.
   • Recommendations for next treatment.

6.11 Post-ECT follow-up and monitoring
6.11.1 Following the end of the treatment course and discharge from hospital it is recommended that:

a) A comprehensive and detailed record is made of the ECT course.

b) The patient is monitored regularly by a psychiatrist or community treatment team in conjunction with the general practitioner for a minimum of six months.

c) The patient should be monitored for any return of symptoms in order to detect any relapse of illness at an early stage.

d) The progress of any ECT-related cognitive impairment must also be monitored.

6.11.2 The inpatient treatment team must ensure at the time of discharge that:

a) The follow-up clinicians are informed of the patient’s response to treatment, the presence of any persisting symptoms of illness, an assessment of any ECT-related cognitive impairment and the post-ECT management plan.
Guideline 7 – Anaesthesia for ECT

Anaesthesia for ECT must be conducted in accordance with ANZCA Guidelines.

7.1 Staffing the anaesthesia service

a) The anaesthetic service for ECT must be under the direction of a consultant anaesthetist with extensive relevant experience.

b) Where trainees are involved they must be supervised in accordance with the ANZCA Guidelines.

c) A member of nursing staff needs to be solely available to assist the anaesthetist throughout the procedure. This person should have adequate experience in assisting anaesthetic services to the satisfaction of the anaesthetist present.

7.2 Equipment

The ANZCA has guidelines (PS55 (2012)) on the equipment required for anaesthetising in locations other than the operating suite:

7.3 ECT Locations

Where provision of an anaesthetic delivery system is not essential, as in an electroconvulsive therapy area, there must be:

a) A breathing system capable of delivering 100% oxygen for both spontaneous and controlled ventilation. An alternative breathing system should be immediately available. Where more than one patient is to be treated, this equipment must be duplicated or there must be an inline viral filter. See College Professional Document PS55 (2012) Guidelines on Infection Control in Anaesthesia.

b) Adequate reserves of oxygen must be available. If a reticulated or indexed gas connection system is in use, an oxygen failure warning device is necessary. An emergency cylinder supply of oxygen is necessary in the event of a central supply failure.

c) Devices to manage the airway as required, including oropharyngeal and nasopharyngeal airways, laryngeal mask airways, endotracheal tubes and the means for their introduction.

d) A device capable of detecting expired carbon dioxide

e) A monitoring apparatus capable of measuring and displaying arterial oxygen saturation, electrocardiography and non-invasive arterial blood pressure.

f) ‘First-line’ emergency drugs, as determined by anaesthetist responsible for the ECT service.

7.4 The pre-anaesthetic examination

a) The patient scheduled for a course of ECT will already have had an admission history and physical examination performed by medical staff. The anaesthetist must perform a patient assessment as described in the ANZCA’s Guideline, the pre-anaesthetic consultation.
b) Particular attention needs to be paid to previous experience of anaesthesia, oral health and the presence of any dental prostheses. Patients who have prostheses which may be at risk during the procedure need to be warned of possible damage to these items.

7.5 Fasting

a) Fasting prior to ECT needs to be of sufficient duration to ensure minimal gastric residue, but excessive deprivation of fluids is to be avoided.

b) The common routine of ‘nil by mouth after midnight’ is simplistic and often results in no intake after 9 pm.

c) Current standards of care require ‘solid’ food to be withheld for a minimum of six hours, but water is permissible for up to two hours pre-treatment. Patients who are awake at any time up to this hour may drink water totalling no more than 200mls per hour, if the anaesthetist agrees.

7.6 Pre-medication

a) Waiting time should be kept to a minimum in order to reduce patient distress and the need for pre-medication.

b) Benzodiazepines are relatively contraindicated before ECT because of their anticonvulsant effects.

c) Other pre-medications should be discussed with the anaesthetist.

7.7 The anaesthetic

The principles for anaesthesia in ECT are:

a) to render the patient unaware of the procedure.

b) to protect the patient from injury resulting from the unconscious state or the procedure being performed.

c) to maintain physiological stability throughout the anaesthetic and until its effects have dissipated.

d) to collaborate with the psychiatrist to ensure an optimal outcome for the patient.

e) pre-oxygenation is recommended,

f) an induction which ensures that the patient is unaware of the onset of muscle relaxation and of the passage of the stimulus.

g) the degree of muscle relaxation must be sufficient to minimise the motor component of the seizure, as well as reducing demands on the myocardium for increased cardiac output.

h) It is important that there is minimal variation in hypnotic dose between treatments to minimise the effect on seizure threshold.

i) Appropriate documentation of anaesthetic agent and patient monitoring is required according to ANZCA Guidelines.

7.8 Protecting the teeth

The temporalis muscle is directly stimulated by the passage of current in both bilateral and
unilateral electrode applications.

a) The muscle relaxant cannot abolish the resulting jaw clench, hence an effective mouthguard is essential.

b) An effective mouthguard must distribute most of the load over the posterior teeth, which are better able to cope with such force.

c) Supporting the chin ensures that the teeth are in contact with the mouthguard and remain in the correct position as the stimulus is applied.

7.9 Monitoring

a) Oximetry and non-invasive arterial blood pressure recording are mandatory

b) Prolonged bradycardia and potential asystole may occur during seizure initiation, and ECG monitoring is highly valuable during ECT treatment and is at the discretion of the anaesthetist

c) Monitoring should continue throughout the seizure and recovery period.

7.10 Recovery

a) Recovery from the usual anaesthetic given for ECT may be prolonged by post-ictal impairment of consciousness.

b) Oxygen and airway support needs to be provided by appropriate recovery staff until the patient’s return of consciousness, and the patient’s observations have returned to baseline.

c) Blood pressure measurement and recording at 15 minute intervals during recovery is normal practice.

d) Discharge from recovery can occur when the patient’s observations are stable and with the agreement of the anaesthetist.

e) Assisted transport back to the ward is required.

7.11 Drug interactions and regular medications

Relevant drug interactions and the use of regular medications at the time of ECT are described in detail in Section 5.2.

7.12 Complications

Management of short-term complications occurring while the patient is still in the ECT suite is the responsibility of the anaesthetist. Complications include those arising from the anaesthetic or the physiological response to ECT as follows:

7.12.1 Anaesthetic complications

a) Anaphylaxis to any of the agents used

b) Prolonged paralysis to suxamethonium due to pseudocholinesterase deficiency. This may be genetic or acquired, associated with severe malnutrition (eg anorexic
patients), liver or renal disease

a) Malignant hyperpyrexia (MH) is a potential risk following the use of suxamethonium for ECT. Therefore the availability of a suitable supply of dantrolene is mandatory.

b) Muscle pain due to suxamethonium is common after the initial treatment. Minor analgesics are effective in managing symptoms.

7.12.2 Physiological Response to ECT

a) The most common and serious complication is an acute hypertensive event. Appropriate intravenous anti-hypertensive drugs can be used to terminate persistent hypertension.

b) Post-ictal agitation can occur and may pose risks to the staff as well as the patient. Appropriate sedatives may be effective.

c) There is no evidence to recommend a time at which a seizure may be defined as clearly prolonged. Whilst the duration of the seizure needs to be considered in the context of the individual patient, if the seizure lasts 2-3 minutes it would be generally considered to be prolonged. The seizure should then be terminated by drugs administered by the anaesthetist.

7.13 Administration

a) The Consultant responsible for the anaesthetic service is encouraged to be a member of the ECT Committee

b) Anaesthetists are encouraged to take part in quality assurance activities and research.
Guideline 8 - ECT in children and adolescents

ECT is rarely used for children (under 16 years) and young people. It is not recommended for children and young people and should only be conducted in exceptional circumstances and following assessment by a Child and Adolescent Psychiatrist for younger patients.

8.1 Effectiveness and indications

8.1.1 Effectiveness of ECT in children and adolescents:

There have been no controlled trials of ECT in children or adolescents.

a) A comprehensive review in 1997 (Rey and Walter, 1997) examined 60 reports and highlighted that the overall quality of studies was poor, but more recent studies have been of better quality.

b) There has been no suggestion that, across the range of disorders, the effectiveness of ECT in adolescents differs from that in adults.

8.1.2 Indications for ECT in adolescents are:

a) The presence of major depression (with or without psychotic features), mania, schizoaffective disorder, catatonia, schizophrenia or neuroleptic malignant syndrome. AND

b) The presence of symptoms serious and disabling enough to threaten the patient’s life (for example, refusal to eat or drink, or high and unrelenting suicide risk) or to cause persistent and grave disability. AND/OR

c) An illness that is resistant to other treatment or where the patient is unable to tolerate medication due to serious side-effects.

8.2 Consent

Under the Mental Health Act 2009 (see Section 3 - Consent and Legal Framework)

8.3 Adverse events

The adverse events reported with ECT in young people were mostly mild and transient and in general were similar in type and frequency to those described in adults. The exception is that the rate of prolonged seizures may be higher than in adults.

There have been no reported fatalities in children or adolescents attributable to ECT in South Australia.

8.4 Procedural aspects

ECT administration in young persons is generally similar to that in adults. There is little evidence on the optimal method of administration in adolescents, but the following points should be noted:

1. All young patients require a personal examination which includes comprehensive psychiatric assessment and a psychiatric diagnosis according to a major classification system such as DSM-5 or ICD-10. A structured diagnostic interview is sometimes helpful.
2. A specialist child and adolescent psychiatrist should always conduct an assessment of the patient for proposed ECT as part of the comprehensive psychiatric assessment.

3. All patients require a comprehensive medical assessment. There are no absolute medical contraindications to ECT in young people. *(There are the same medical contraindications as for adults)*

4. Consent must be carefully addressed. Every effort should be made to explain the procedure clearly to the young person and their family, including the benefits and risks, with due attention to the patient's age and developmental stage.

5. The need for concurrent medication during the ECT course should be ascertained on a case-by-case basis.

6. The seizure threshold for adolescents is often lower than that in adults.

7. The site of electrode placement and frequency of ECT treatment are as for adults.

8. The number of treatments usually required (6-12) is similar to that required by adults. The total number should be based on treatment response rather than a pre-determined plan.

9. Improvement and side-effects should be monitored by regular clinical assessment, patient self-report, collateral observations from family and carers and weekly use of subjective and objective symptom rating scales.

10. Monitoring should also include ongoing assessment of academic performance.

11. Adolescents may require medication and/ or psychological interventions following the ECT treatment course, in order to maintain improvement and prevent relapse.

12. Maintenance ECT may occasionally be considered when the initial improvement is not sustained despite other measures. Its role should be carefully considered by the treating psychiatrist/team and discussed thoroughly with the patient and family before implementing this approach in adolescents.

13. A person aged 16 years and over can consent to treatment (see Section 3 Consent and Legal Framework).
Guideline 9 – Continuation and Maintenance ECT

ECT is a highly effective treatment, particularly for depression. However, the risk of immediate relapse after an acute course of treatment is high if ECT treatment is stopped abruptly in the absence of overlap with prophylactic treatment, such as medication.

Generally, prophylactic psychotropic medication should be introduced prior to the end of the acute course of ECT. Some patients may also require continuation and maintenance ECT to prevent relapse.

9.1 Continuation and maintenance ECT

Continuation ECT (C-ECT) is defined as treatment administered following a successful course of ECT, at a frequency of weekly to monthly, for up to six months after remission from acute illness is achieved.

a) It aims to prevent relapse of symptoms, and is sometimes administered at the same time as medication until it is apparent that medication will provide effective prophylaxis.

b) If patients stay well during this phase, the period of time between treatments should be extended as much as possible.

Maintenance ECT (M-ECT) is administered at weekly to monthly intervals (and occasionally less frequently) more than six months after treatment of the acute illness. The objective is to prevent another episode or recurrence of illness.

Both C-ECT and M-ECT are generally administered as outpatient treatment.

9.1.1 Indications for continuation and maintenance ECT

Factors to be considered when assessing whether a patient may benefit from continuation or maintenance ECT include the following:

a) Response to ECT during the initial course of treatment. A clear and substantial benefit from a previous course of optimally-administered ECT is a prerequisite.

b) Illness acuity. Because of the limited availability of ECT, its cost and the potential for adverse events associated with ECT and anaesthesia, continuation and maintenance ECT should generally be reserved for individuals with a history of frequent recurrent episodes of severe illness.

c) Resistance to alternative maintenance medication. Candidates for continuation or maintenance ECT are likely to have a history of frequent relapse or recurrence despite having taken appropriate medications at adequate doses for an adequate duration.

d) Intolerance of alternative treatments. It may be impossible to maintain treatment with sufficient doses of multiple medications for sufficient time to provide adequate prophylaxis against further episodes of illness.

e) Patient preference. Some patients may choose continuation or maintenance ECT over other therapeutic approaches, in order to prevent relapse.
9.1.2 Specific indications for continuation or maintenance ECT include the following:

a) **Recurrent depression.** Where other therapies are inadequate to maintain improvements.

b) **Bipolar disorder.** Continuation or maintenance ECT may be effective, especially in patients with rapid-cycling bipolar disorder.
   - Concurrent medications should be reviewed by the treating ECT psychiatrist on a case by case basis (see Section 5).
   - More frequent sessions of ECT may be required, compared to other indications, with inter-treatment intervals as short as one to three weeks. Mood switches can occur with ECT, at a rate similar to that experienced with antidepressant medication, but concurrent treatment with lithium may reduce the risk. In general, a mood switch is not an indication to stop ECT.

c) **Treatment-resistant schizophrenia.** Maintenance ECT is often required to sustain an initial response in patients with schizophrenia that is resistant to other therapy.
   - Many case reports have described the co-administration of clozapine and maintenance ECT: most have been positive, but have been limited in the duration of follow-up, and there is not yet a solid evidence base on the efficacy of maintenance ECT for this indication.
   - In general, maintenance ECT should be considered only after options for antipsychotic medication have been fully explored, and administered in combination with an antipsychotic medication. Objective measures of illness may be helpful to establishing the benefit of ECT.

9.2 ECT schedule and administration

The optimal timing and frequency of continuation and maintenance ECT treatments is yet to be determined, and probably varies between individuals.

An important aim is to extend the inter-treatment interval and minimise the cumulative number of ECT treatments in order to reduce the risk of cognitive side-effects.

9.2.1 Several approaches are acceptable

a) **Fast transition.** Fast transition aims to convert patients rapidly to monthly treatments after the end of the index course. The first maintenance treatment is given one week after completion of the index course, the second two weeks after the first, the third three weeks after the second, and then monthly.

b) **Slow transition.** The largest clinical trial of continuation ECT, undertaken by the Consortium for Research on ECT (CORE) group in the United States used a slow transition method (Kellner et al, 2006). Continuation ECT was administered weekly for four weeks, every two weeks for two months and monthly thereafter.

c) Adhering rigidly to a pre-defined transition schedule may sometimes be problematic. For example, aggressively pursuing an inter-treatment interval of one month in a rapid transition schedule may result in relapse, particularly in patients with rapid-cycling bipolar disorder or depressive illness and a history of early relapse after ECT.

d) Firm adherence to a slow transition schedule may also be less than optimal for some patients, especially if symptoms suggest a relapse or the persistence of a manic switch in patients with bipolar disorder. The schedule should also be reviewed if a patient is making good clinical progress but experiencing adverse side-effects of ECT.

e) A flexible approach is therefore, recommended, with treatment schedules adjusted as needed in response to frequent review of the benefits of ECT, possible breakthrough
symptoms, and careful assessment for adverse effects (Lisanby, 2008).

9.3 Cognitive side-effect of continuation of maintenance ECT

Existing evidence suggests that Mini-Mental State Examination (MMSE) scores remain unchanged or are increased during continuation or maintenance ECT (Rami-Gonzalez, 2003). However, neuropsychological testing of 11 patients having maintenance ECT for an average of three years for the treatment of depression, with an average of almost two months between treatments, identified deficits in learning and frontal function compared to controls (Rami-Gonzalez, 2003).

Patients receiving continuation or maintenance ECT must have regular cognitive assessment with a standardised instrument. This should occur at least every three months, or more frequently if significant or worsening deficits are identified. 

*Cognitive side-effects might be reduced by:*

- a) Extending the interval between maintenance treatments to as long as possible.
- b) Reviewing electrode placement.
- c) Using Ultra brief pulse ECT.
- d) Regular review and adjustment of psychotropic medications.

9.4 Duration of maintenance ECT

The need for maintenance ECT must be regularly reviewed and documented. Plans to continue or cease treatment should be made in consultation with the patient and their family.

*Note:* Under the Mental Health Act 2009 consent for ECT is valid for a maximum of 3 months.

9.5 Documentation and legal requirements

9.5.1 Voluntary Patients: capable of giving consent

In addition to the usual requirements for consent to treatment and maintenance of an adequate medical record, an entry must be made in the patient’s file whenever consent is obtained describing:

- a) The continuing need for ECT and the response.
- b) Discussions with the patient when capable of giving consent and, if appropriate, the family on the risk-benefit of maintenance treatment and the option of ceasing treatment.

9.5.2 Third Party Consented Patients:

Additional documentation is required for patients who do not have capacity to consent to maintenance ECT (see Section 3 Consent and Legal Framework).
Guideline 10 – Training, Credentialing and Clinical Privileging

ECT is a medical procedure that requires specialist medical, nursing and anaesthetic knowledge and skills. A specialist qualification in psychiatry, or in nursing, is not sufficient to deliver the safe and effective administration of ECT.

10.1 Definitions

Training
Training refers to the formal process of gaining specialist knowledge and skills. Medical and nursing staff involved in administering ECT must have appropriate theoretical and practical training. There are multiple pathways to receive appropriate training which underpins specialist recognition through credentialing and clinical privileging in ECT delivery. Formal programs therefore must be provided/made available to medical and nursing staff for training/retraining in ECT delivery.

The other medical practitioner, who must be present for the ECT procedure, is a specialist anaesthetist or, in the absence of a specialist anaesthetist, a registered medical practitioner accorded with privileges in anaesthesia. The anaesthetist must have training and experience in anaesthesia for ECT. Where anaesthetic registrars are administering the anaesthetic for ECT delivery, adequate supervision and support must be provided by a specialist anaesthetist.

Credentialing
Credentialing of medical and nursing clinicians refers to the formal process used to verify the qualifications, experience, professional standing and other relevant professional attributes.

The purpose of credentialing in the practice of ECT is to formally establish the clinician’s competence, performance and professional suitability to provide safe, high quality health care services within specific organisational environments.

Clinical Privileging
Clinical Privileging is a process for medical practitioners which defines the scope of clinical practice and follows completion of the credentialing processes. Clinical Privileging involves delineating the extent of a medical practitioner’s clinical practice of ECT within a particular organisation based on the individual’s credentials, competence, performance and professional suitability, and the needs and the capability of the organisation to support this type of clinical practice.

There are specific requirements for training of psychiatry trainees, psychiatrists and nursing clinical staff, involved in the delivery of ECT in South Australian facilities, outlined in the section below.

10.2 Psychiatry
RANZCP Guidelines provide some specific training requirements in relation to ECT during basic psychiatry training administered by the South Australian Psychiatry Training Committee (SAPTC). The 2012 Training Program requires the trainee to complete an Entrustable Professional Activity (EPA).
10.2.1 Trainees
In the 2012 program, the trainee must demonstrate proficiency in all the expected tasks and will need to attend as many supervised ECT sessions as are required to achieve competence in this EPA. Competence is demonstrated if the trainee has shown sufficient aspects of the knowledge, skills and attitudes described in the EPA.

10.2.2 Granting of Clinical privileges for ECT
The completion of this general psychiatry training is not considered adequate to grant clinical privileges in the administration of ECT.

Holding a specialist qualification or being at an advanced stage of training in psychiatry is necessary but not sufficient to be granted clinical privileges in the administration of ECT. To be granted clinical privileges as a psychiatrist or an advanced psychiatric trainee who can administer ECT at a particular site, the psychiatrist or advanced psychiatric trainee must be credentialed at that site and must demonstrate that they have achieved competence by having completed the following:

a) Attendance at a formal ECT training course for psychiatrists in ECT within the last five years; and

b) Received supervised training in ECT from a psychiatrist with clinical privileges to perform ECT for at least 20 treatments within the last year. The supervising psychiatrist must be able to confirm in writing to the Director of ECT, that the psychiatrist or advanced psychiatric trainee is competent to perform ECT without supervision; or

c) Have current privileges in ECT, at another psychiatric hospital or facility that administers ECT according to current best practice protocols.

10.2.3 Requirements for a Psychiatrist to be credentialed to train other medical staff in the administration of ECT
To be eligible to train psychiatry registrars, conduct the supervised EPA demonstration and to supervise other psychiatrists in ECT for credentialing purposes, the specialist psychiatrist must be ECT credentialed and hold privileging status at the particular site and meet the following criterion:

a) Attended a formal approved ECT training course for psychiatrists in ECT over the last five years, or:

b) Been a member of a formal ECT Peer Review group for the last 12 months, or;

c) Been formally credentialed, for a total of at least 3 months within the last 12 months, to train other psychiatrists in ECT at another psychiatric hospital or facility that administers ECT according to best practice protocols, and:

d) Personally delivered 20 ECT treatments over the last 12 months.

10.2.4 Maintaining Clinical Privileges in ECT
Continuing education and training in ECT and the delivery of 20 ECT treatments per year is required for psychiatrists and advanced psychiatric trainees to maintain competence in ECT. The RANZCP Branch-ECT sub-committee and RANZCP ENSIG (ECT and Neurostimulation Special Interest Group) will foster and encourage the provision of such training and education programs/workshops in South Australia.
10.3 ECT Nurse Coordinators

ECT nurse coordinators must have the necessary training and experience to enable them to perform the various roles required in the ECT suite (see section 11). There are minimum requirements to be met to fulfil the ECT Nursing Coordinator’s role. The ECT coordinator or delegate must be in attendance at each treatment session (except when ECT is given in an emergency).

10.3.1 Requirements

To be credentialed as an ECT nurse coordinator the following criteria must be met:

a) Be a registered nurse with Mental Health Nursing experience.

b) Demonstrate knowledge of protocols, procedures and relevant documentation.

c) Have attended a formal training course in ECT.

d) Have attended, and participated in, at least 10 treatments. One of these should be a titration.

e) Have recent work experience in ECT.

f) Be aware of the relevance of the Mental Health Act 2009, other documents and guidelines framing the delivery of ECT in SA, and opportunity for voluntary participation in the South Australian ECT Nurses Special Interest Group (SAENSIG).

g) Participate in ECT peer review.

10.3.2 Training

Training courses for nurses should be developed within the nursing profession, and be approved by the Office of the Chief Psychiatrist (OCP).

These courses should cover all aspects of the ECT including:

a) Patient focused care including patient and family education.

b) The workup for ECT.

c) ECT treatment.

d) Indications and contraindications including higher risk situations.

e) Issues of concurrent medications.

f) Potential adverse events.

g) ECT device operations. Stimulus dosing guidelines and protocols.

h) Ongoing monitoring of response to treatment.

i) Legal issues and consent.

j) Role of psychiatrists, anaesthetists and others assisting with ECT.
Guideline 11 – Nursing and Coordination Requirements for ECT

In South Australia, specialist ECT nurses work with the medical team to ensure patients receive care of the highest standard. In addition, mental health nurses caring for patients are involved in the provision of this treatment. Safety and comfort, within a patient-centred setting, is the objective.

There are five foundation principles embedded within the role for the ECT nurse, which individually and collectively contribute to safe outcomes for the patient:

1. The patient is at the centre of care.
2. Education for carers, patients, family, community, health care professionals and ECT practitioners.
3. Nursing clinical knowledge and technical skills.
4. ECT Nurse Coordination and liaison.
5. Contemporary, evidence-based policy and procedure.

Underpinning these five principles is the need for continuing quality improvement (CQI) in practice and evaluation of the care delivered to enable service improvements as part of an evolution in systems and processes (Lamont et al 2011).

11.1 The patient at the centre of care

Patient-centred care is an approach to service where “patients and carers are actively involved in the development, planning, delivery and evaluation of services” (National Standards for Mental Health Services 2010).

Using patient-centred philosophy, within a mental health nursing context, the provision of ECT requires two key nursing practice components which are:

11.1.1 The Therapeutic Relationship

a) The ECT nurse demonstrates empathy and understanding, by recognising and acknowledging the anxieties experienced by not only the patient, but the family and carers.

b) The delivery of reassurance, supported by sound professional knowledge relating to ECT. This runs parallel to the role of the ECT nurse as a patient advocate. Recognizing the individuality of the patient in a professional and confidential manner allows for the development of honest dialogue and information exchange for optimal health outcomes.

c) Maintaining privacy, respect and dignity at all times.

11.1.2 Facilitating and contributing to the journey toward recovery

a) The administration of ECT is viewed as a component along the continuum of care of a mental health patient, and the ECT nurse contributes in partnership with the client, family and carers, during this part of the journey (Appendix 5).

b) The ECT nurse, as a health care provider, is integral to recovery and can make the difference between ‘full recovery’ and ‘giving up’ (Kivler 2010). The concept of hope is embraced.
c) The patient is involved in each step of the process. Realistic goals and expectations are set. Good interpersonal skills, empathy and confidentiality humanise the environment and assist the patient to move through the treatment journey.

11.2 Education for carers, patients, community and health care professionals

11.2.1 Patients and Carers

For the patient and family, education focuses around generating an informed understanding of ECT. The mental health nurse therefore must play an important role in the process of obtaining informed consent (Fetterman and Ying 2011). This role involves the provision of information which is accurate and representative of the journey the patient will be undertaking.

The use of audio-visual aids and written materials represent part of the ECT nurse’s toolkit and augments the provision of emotional support and engagement. The opportunity for the patient to ask questions provides a catalyst for the ECT nurse to engage and explore issues with the patient; enhancing the therapeutic relationship.

11.2.2 Community and health care professionals

Engaging other parties in understanding and de-stigmatising ECT as a treatment modality, is an important component for the role of the ECT nurse. ECT nurses participate in the provision of education to the tertiary sector and across the health care industry; clarifying attitudes, reducing stigma and strengthening understanding of ECT as a life-saving treatment option (Rosedale 2011). One on one teaching during the course of operating ECT clinics contributes to the student’s learning experience.

11.3 Clinical knowledge and technical skills

Knowledge and skills are components which inter-link and demonstrate the unique nature of the ECT nurse’s role. Nurses involved with the administration of ECT must have sound knowledge (Kavanagh and McLoughlin 2009) and a positive attitude (Wood et al 2007) to provide the appropriate support for patients undergoing ECT.

In terms of quality in practice, contemporary methods relating to ECT require continuous review, and enhance the ability of the ECT nurse to provide safe and effective care. ECT nurses must have competency and skills in recovery, airway and anaesthetic principles the opportunity to attend ECT and advanced ECT training courses on an ongoing basis to ensure currency of practice (Munday et al 2003).

ECT nurses also participate in various research activities and projects, making a valuable contribution to the body of ECT knowledge.

ECT coordinators are proficient in the use and maintenance of equipment, and can diagnose and rectify faults. Issues with EEG traces and an inability to reach a satisfactory impedance level are due to wiring, hardware, electrode or contact faults, which require rapid and decisive response and resolution.

ECT Nurses have an in-depth understanding of:

a) Clinical indicators for ECT.

b) The risks and side effects of ECT.

c) The technical placement of electrodes.

d) The dosing schedules, procedural algorithms and stimulus dose titration protocols for ECT.
e) The assessment of seizure quality.

f) The requirements for record keeping/data collection and analysis of same.

Nurses involved in ECT ensure the patient is appropriately prepared for ECT (including investigations; review of results; attainment of informed consent and patient/carer advocacy (see Table 11.1).

11.4 ECT Nurse Coordination and Liaison

Four major components of nurse coordination within an ECT service are as follows:

1. Management and interactions with key stakeholders

   • Well-developed interpersonal skills enable the ECT nurse to communicate and liaise with a diverse range of health professionals, including community staff, psychiatrists, anaesthetists and recovery nurses.

   • Relationships with other disciplines are an important element of the ECT nurse’s role. The ECT nurse has carriage of systems around referrals to and within the multi-disciplinary team, clinical follow up and communicating the concerns of the patient.

   • Effective communication and liaison with other areas such as suppliers, purchasing and biomedical engineering is essential. Rapid access to these areas is required for maintaining supplies, ensuring all equipment is maintained, electrically tagged and tested and in good working order. Equipment faults must be able to be diagnosed, communicated and rectified promptly.

2. Management of workforce

   • Service provision within the ECT environment requires the ECT nurse to consider existing pre-requisites (elements of skill) to allow staffing to provide optimum patient care.

   • Staff are required to have appropriate qualifications to work in this area.

   • This requirement forms part of the quality cycle, in terms of monitoring and evaluating standards, and safety of care, provided to the patient group.

3. Flow and triage

   • The concept of flow and triage are important components of the ECT nurse’s role. They ensure the smooth transition of patients from induction to recovery during ECT; the coordination of patient traffic and the safe journey of the patient through the ECT service.

   • The ECT nurse has a global awareness of the health service’s inpatient units in terms of ward based systems and demand, and communicates readily with other clinicians to ensure that the flow of patients is met in the most appropriate manner.

   • Clinical prioritisation ensures that the safety and wellbeing of all patients and staff is maintained so that the delivery of ECT to a patient whose behaviours place them at risk, are managed in the most contemporary manner.

   • Issues relating to access and egress for community patients are also a facet of the ECT nurse’s role, ensuring that the post ECT management of a community patient is appropriately met.

   • The application of sound management principles in relation to the coordination of the ECT service is part of the role of the ECT nurse. The ECT nurse ensures that the delivery of the ECT service is undertaken in the most effective, efficient and safe manner and that the experience promotes positive outcomes for patients and their families and promotes the efficient use of the workforce.
4. Quality Improvement, evaluation and monitoring

The ECT nurse coordinator:

a) Ensures each ECT treatment episode is recorded in the patient record as per local health service protocol.

b) Ensures and/or conducts the monitoring of patient outcomes and potential adverse effects of ECT, prior to ECT, during a course of ECT and at the conclusion of a course of ECT.

c) Ensures that standardised patient assessments are completed and recorded in the patient’s record, and the treating psychiatrist is notified of patient assessment results.

11.5 Contemporary Evidence Based Policy and Procedure

a) Mental health nurses have a responsibility to disseminate the evidence for treatments that improve outcomes for persons with serious psychiatric disorders (Rosedale et al 2011)

b) The ECT coordinator ensures that staff are able to access policies and that there is compliance with existing policy and procedure frameworks.

c) In collaboration with the medical director, the ECT coordinator develops local work instructions, through identifying systems and processes that relate to clinical care as well as management of equipment and personnel. Local work instructions are reviewed and updated annually.
<table>
<thead>
<tr>
<th>ECT Pre treatment</th>
<th>ECT Treatment</th>
<th>ECT recovery</th>
<th>ECT post recovery</th>
</tr>
</thead>
<tbody>
<tr>
<td>Comprehensive nursing assessment and provision of safe and effective nursing care. Ensure patient knows to fast from midnight, as approved by the anaesthetist. Emotional support, patients should be escorted to ECT by a nurse known to them. Ensure all care is documented and consolidated including consent, pre-treatment assessments; eg mini mental Pre-treatment checklists which includes time last voided, baseline obs, hygiene attended to, appropriate clothing provision of information and education – brochures, DVD, availability to answer questions arrange interpreter Ensure patient gives permission for students to be present handover to ECT staff including risk assessment. Prepare ECT list, advise re appointment times. Commence discharge planning for outpatients. Ensure compliance with infection control and OH&amp;S requirements</td>
<td>Assemble equipment, ensure all medications are available. Ensure all emergency equipment is available and checked and all staff are trained in emergency procedures. Welcome patient, introduce self. Act as a patient advocate. Ensure privacy, respect and dignity is maintained at all times. Verify consent and fasting status. Team Time-Out procedure. Assist medical officer. Implement isolated limb technique. Operate machinery e.g. baseline EEG, impedance ensure bite block insitu, protect patient during seizure, observation of seizure, ensure all care has been documented, teaching activities</td>
<td>Receive handover from anaesthetist. Administer oxygen. Apply suction if secretions present. Maintain airway. Vital observations, observe skin colour. Carry out any post procedure orders. Care of the unconscious patient. Observe for restlessness, confusion or agitation. Evaluation of an anaesthetic recovery score. Assess return of gag reflex. Offer pain relief. Notify medical officer if condition worsens. Organize transfer out of recovery. Remove IV access. Document care, ensure case notes are assembled. Nursing handover</td>
<td>Care on the ward or in stage 2 for outpatients. Offer food and fluid. Give medications. Ensure all care has been documented and filed For outpatients assessment of criteria to discharge home e.g. mental state, gait, orientation. Responsible adult in attendance. Provide post procedure instructions; e.g. do not drive or sign important documents. Ensure patient has adequate follow-up. Evaluate patient’s progress. Cleaning of equipment and environment, restock consumables. Involvement in ECT ward round and committee meetings. Safety and quality activities. Develop guidelines. Evaluation of service eg patient and carer questionnaires, ECT statistics and data entry. Liaison with other departments. Provide education.</td>
</tr>
</tbody>
</table>

**Table: 11.1 Elements of the ECT Nurse Coordinator’s Role**
Guideline 12 – ECT Facility Requirements

The Mental Health Act (2009) provides for inspection by the Chief Psychiatrist of facilities where ECT is performed. Facilities will be inspected by the Office of the Chief Psychiatrist at least once every three years (see Appendix 3) and assessed against requirements and the Chief Psychiatrist Standard – Electroconvulsive Therapy (see Attachment 1).

Requirements for ECT premises

The following information establishes the criteria against which services will be assessed. These are based on the four (4) criteria setting the minimum acceptable standard for premises at which ECT is to be performed - and referred to as the key criteria:

12.1 Suitability of the premises for ECT procedure

Suitability of the premises will be assessed against the following principles:

a) The premises facilitate the safe administration of ECT.
b) Privacy needs of persons receiving ECT are maximised.
c) ECT is able to be scheduled at a time that meets patient care needs.

All areas/suites where ECT may be performed are to be inspected. This includes operating suites for services that use them. The recommended requirement for an ECT service is three rooms:

a) A waiting room of sufficient size to accommodate the rate and number of persons treated per session with access to toilet facilities.
b) A treatment room, including scrub-up basin/sink, oxygen supply, emergency oxygen supply, suction, emergency suction, adequate lighting, emergency lighting and telephone/intercom.
c) A recovery room of sufficient size to accommodate the rate/flow of persons treated per session, including scrub-up basin/sink, oxygen supply, emergency oxygen supply, oxymeters, suction, emergency suction, adequate lighting, emergency lighting, telephone/intercom and access to toilets in privacy.

12.2 Suitability of the ECT procedures in place

The Clinical Director (ECT) in each facility must have evidence of the following procedures in place and available for inspection by the Office of the Chief Psychiatrist:

12.2.1 Procedures for ECT staff credentialing and mandatory training (see Section 10)

a) the Clinical Director (ECT) must have privileging rights, and be currently credentialed in ECT administration, and be prepared to supervise in EPA program for trainees.
b) all psychiatrists responsible for administering ECT must be privileged in the facility and currently credentialed in ECT administration.
c) the ECT Nurse Coordinator must have completed an approved ECT training course, be credentialed in ECT administration, and be able to supervise nursing staff credentialling.
d) A register of practitioners with privileges in ECT, and their qualifications, is to be maintained by the clinical director (ECT)

e) as a minimum requirement all nursing and medical staff must undergo Basic Life Support (BLS) training every two years.

12.2.2 Demonstrable systems must be in place to manage physical and psychiatric emergencies.

12.2.3 Quality improvement plan for ECT services for various aspects of quality in use of ECT, and evidence of patient outcomes as a result of treatment.

12.2.4 Documentation of ECT procedure including

a) Notification of Emergency ECT treatments to the Office of the Chief Psychiatrist within 24 hours of the procedure in accordance to the Mental Health Act 2009.

b) Record patient ECT data (assessment and treatment) in the electronic databases provided.

12.2.5 Reporting

a) Report ECT data annually.

b) Patient ECT records must be documented in an electronic hospital database available for de-identified and aggregated reporting purposes.

c) Adverse incident reporting and management.

12.3 Suitability of equipment to be used in the performance of ECT

The minimum requirements are:

a) ECT machine must be listed with the Therapeutic Goods Administration, must provide EEG monitoring and recording of the seizure, permit a charge of up to 1008 mc to be given, and be capable of delivering stimulus dose titration

b) Documented servicing of the ECT machine must occur at least once a year

c) Anaesthetic equipment, resuscitation equipment and emergency drug supplies to be in accordance with ANZCA's technical Standard 1: Recommendations on Minimum Facilities for Safe Administration of Anaesthesia in Operating Suites and other anaesthesia locations (ANZCA 2006).

d) Demonstrable systems for the maintenance and servicing of anaesthetic and resuscitation equipment are in place

e) Demonstrable systems for regular replacement of out-of-date and missing anaesthetic and emergency drugs are in place

f) A demonstrable infection control policy is in place

g) Annual review of anaesthetic and emergency drugs kept in the ECT service is conducted by a specialist anaesthetist

h) A designated person, such as the ECT coordinator, is to be responsible for these duties.
12.4 Staffing of ECT services

The minimum requirements are:

a) Each facility must have a qualified psychiatrist and a registered nurse with training, and experience in the administration of ECT. There must be a designated Clinical Director (ECT) and an ECT coordinator.

b) Only a registered, accredited medical practitioner is permitted to perform ECT; the practitioner must be a qualified psychiatrist or advanced psychiatric trainee and have clinical privileges for administration of ECT at the site. Advanced psychiatric trainees performing ECT must do so only under the effective supervision of a Consultant Psychiatrist who has clinical privileges for ECT at the treatment facility. Refer to Section 10 for a full description of requirements.

c) Nursing staff numbers at each session are to be in accordance with ANZCA’s PS4 Recommendations for Post Anaesthesia and Recovery (ANZCA_PS4_2006) as follows:

- Staff trained in the care of patients recovering from anaesthesia must be present at all times.
- A registered nurse trained in recovery area care should be present at all times.
- Trainee nurses and registered nurses who are not experienced in the care of patients recovering from anaesthesia must be supervised.
- The ratio of registered nurses to patients needs to be flexible so as to provide no less than one nurse to three patients, and one nurse to each patient who has not recovered protective reflexes or consciousness.
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Australian Government National Mental Health Strategy National Standards for Mental Health Services 2010; Standard 3 Patient and Carer Participation, p11


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5. Roles and Responsibilities

The ECT Policy Guidelines should be used in conjunction with the ECT Chief Psychiatrist Standard, and practiced in line with national safety and quality standards, professional standards, and Local Health Network service or facility protocols and procedures.

Executives
The Chief Executive of the Department for Health and Ageing, Chief Executive Officers of the Local Health Networks, Chief Psychiatrist, Executive Directors of Mental Health Services and Clinical Directors of Mental Health Services will promote, monitor and evaluate the use of this Policy Guideline, will ensure infrastructure and systems are in place to implement and monitor its use, and will ensure managers and clinicians are trained and supported for its implementation.

Managers
Sector Managers and Team Leaders of Mental Health Services and Managers of Safety and Quality will promote, monitor and evaluate the use of this Policy Guideline, and will ensure clinicians are trained and supported for its implementation.

Clinicians
ECT specialist clinicians, mental health service staff and other treatment centre staff will implement and monitor the use of this Policy Guideline.

6. Reporting

The use of ECT will be reported using the usual paper-based and electronic medical record and patient administration systems of incorporated hospitals that provide ECT in South Australia.

Systemic reports will be made by ECT sites as required, by the Strategic Mental Health Quality Improvement Committee on a monthly basis and by the Office of the Chief Psychiatrist on a yearly basis as part of the statutory Annual Report.

7. EPAS Considerations

This policy guideline has application within the operational clinical and related business environment of SA Health and impacts directly on clinical and related business practices within the public health system. Reference to this ECT Policy Guideline and Chief Psychiatrist Standard – Electroconvulsive Therapy has been applied within EPAS.

8. Associated Policy Directives / Policy Guidelines

ElectroConvulsive Therapy Chief Psychiatrist Standard.
9. References, Resources and Related Documents

- Advance Care Directives Act 2013.
- Consent to Medical Treatment and Palliative Care Act 1995.
- Guardianship and Administration Act 1993.
- Local operational protocols and work instructions.
- Mental Health Act 2009.
- National Practice Standards for the Mental Health Workforce 2013.
- National Safety and Quality Health Service Standards 2012.
- National Standards for Mental Health Services 2010.
- Professional body Codes of Conduct and Standards.

Hyperlinks to relevant legislation, references, standards or sources of advice and further information that could be used in conjunction with the policy directive have also been included wherever they appear in the document.

10. National Safety and Quality Health Service Standards

The Australian Commission on Safety and Quality in Health Care has developed National Safety and Quality Health Service Standards. The following Standards apply to the administration of ECT:

<table>
<thead>
<tr>
<th>National Standard</th>
<th>Description</th>
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<tbody>
<tr>
<td>National Standard 1</td>
<td>Governance for Safety and Quality in Health Care</td>
</tr>
<tr>
<td>National Standard 2</td>
<td>Partnering with Consumers</td>
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<tr>
<td>National Standard 3</td>
<td>Preventing &amp; Controlling Healthcare associated infections</td>
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<td>National Standard 4</td>
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<td>National Standard 5</td>
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<tr>
<td>National Standard 9</td>
<td>Recognising &amp; Responding to Clinical Deterioration</td>
</tr>
<tr>
<td>National Standard 10</td>
<td>Preventing Falls &amp; Harm from Falls</td>
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</tbody>
</table>

11. Other

NA

12. Risk Management

See Guidelines 1 to 12 for detailed risk management strategies across the 12 areas of practice.

13. Evaluation
Compliance with this ECT Policy Guideline and the accompanying Chief Psychiatrist Standard – Electroconvulsive Therapy, will be measured through the Office of the Chief Psychiatrist mandatory ECT Facility Accreditation. Facility specific Key Performance Indicators (KPIs) will be developed collaboratively as part of the ongoing quality improvement cycle.

Statewide ECT KPIs are monitored and reported by the Strategic Mental Health Quality Improvement Committee.

14. Attachments

Appendix 1 – Consent to ECT form (MR82J)
Appendix 2 – Administration of Emergency ECT without Patient Consent form (MR90I)
Appendix 3 – Patient and Carer ECT Information Sheet
Appendix 4 – Titration Schedule for MECTA Spectrum 5000
Appendix 5 – Titration Schedule for Thymatron
Appendix 6 – ECT Facility Inspection Report
Appendix 7 – Cultural Diversity Knowledge, Skills and Attributes

15. Definitions

Definitions of specialist clinical and technical elements for the administration of ECT are included throughout Section 4 of the Electroconvulsive Therapy Policy Guideline.
CONSENT TO ELECTRO-CONVULSIVE THERAPY (ECT) (MR82J)

1. PATIENT DEMOGRAPHIC DETAILS

Address: .......................................................... Please print)
Suburb: ................................................................ Postcode: _______ _______ _______ _______

2. EXAMINATION OF PATIENT and AUTHORISATION OF ECT

I have examined the patient and I am satisfied that he/she has a mental illness and requires ECT for the treatment of his/her mental illness.

I have explained clearly and fully to the patient/person consenting on behalf of the patient (please indicate) the need for the treatment; the nature, consequences and risks of the proposed treatment; and alternative treatment available (if any).

I believe the patient/person consenting on behalf of the patient (please indicate) has understood the explanations and answers and is capable of giving informed consent to the ECT treatment.

The above named patient was examined on: ___/___/20___ at ___:___ am
At __________________________________________, (print location of the person for the examination)
Face to Face ______________________ Videoconference ______________________

s42(2) limits consent to a maximum of 12 episodes of ECT and a maximum of 3 months.
This consent expires on ___/___/20___ unless 12 episodes of ECT are administered before that date.
* If further ECT is required another consent can be sought.

Additional Information: __________________________

Full name (please print): __________________________
Designation: Psychiatrist

Signature: __________________________ Date: ___/___/20___ Time: ___:___ am/pm

3. CONSENT BY PATIENT, MEDICAL AGENT, GUARDIAN OR PARENT

The following matters about ECT have been clearly and fully explained to me:

Tick if applicable

Why the treatment is needed and exactly what has been recommended
The nature, consequences and risks attached to the treatment
Any alternative treatments or options that may be available in the circumstances

I have read and understood the information on the back of this form and all my questions regarding ECT have been answered. I understand that I can refuse to give consent and if I do give consent, I can withdraw it at any time in the future before the treatment is carried out.

I consent to the administration of ECT as authorised above.

Self Medical Agent Guardian Parent

Full name (please print): __________ Date: ___/___/20___ Time: ___:___ am/pm
Signature: __________________________

SA Health Created: ________________
May 2012

CONSENT TO ELECTRO-CONVULSIVE THERAPY (ECT) (MR82J)

1. PATIENT DEMOGRAPHIC DETAILS

Address: .......................................................... Please print)
Suburb: ................................................................ Postcode: _______ _______ _______ _______

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* If further ECT is required another consent can be sought.

Additional Information: __________________________

Full name (please print): __________________________
Designation: Psychiatrist

Signature: __________________________ Date: ___/___/20___ Time: ___:___ am/pm

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The nature, consequences and risks attached to the treatment
Any alternative treatments or options that may be available in the circumstances

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Full name (please print): __________ Date: ___/___/20___ Time: ___:___ am/pm
Signature: __________________________

SA Health Created: ________________
May 2012
CONSENT TO ELECTRO—CONVULSIVE THERAPY (ECT)  
(MR82J)  

Hospital: .................................................................

General information about Electro-convulsive therapy (ECT)  
• Electro-convulsive therapy (ECT) is regarded as a very safe form of medical treatment for major depression, bipolar disorder and psychotic illnesses related to schizophrenia.
• Most people show some improvement after three or four episodes of ECT treatment, however, for some people, it may take more episodes of treatment for them to improve significantly.
• A person receiving ECT may also be given medication to make the return of symptoms less likely and the person may also receive counselling and/or rehabilitation services.
• ECT can only be authorised by a psychiatrist who has examined a person.
• ECT is performed under a general anaesthetic and under the direct supervision of a psychiatrist with the assistance of an anaesthesit. Nurses may also assist.

Information about the need for written consent to ECT by or on behalf of a person
• A psychiatrist who has examined a person may recommend ECT for the treatment of the person’s mental illness.
• Written consent to the treatment must be given in the presence of an independent witness, that is, someone other than the psychiatrist who has authorised the ECT.
• Consent to ECT extends to consent for a general anaesthetic to enable the treatment to be administered.
• In circumstances where a person for whom ECT has been authorised cannot consent, a medical agent or guardian may consent on behalf of the person.2
• If written consent cannot be given by or on behalf of a person, the treating team can apply to the Guardianship Board for consent. The Board will consider the application and may (or may not) approve the administration of ECT.
• The maximum number of episodes that can be authorised and consented to in writing (during or after the current course of treatment).

Emergency treatment
• In an emergency if it is not practicable to obtain written consent, an episode of ECT can be given without consent, if a psychiatrist believes it is urgently required for a person’s well-being.
• The giving of ECT in an emergency is not limited to one episode, however, each episode of emergency ECT must be authorised separately.

CONSENT TO ELECTRO—CONVULSIVE THERAPY (ECT)  
(MR82J)  

Hospital: .................................................................

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• The giving of ECT in an emergency is not limited to one episode, however, each episode of emergency ECT must be authorised separately.

1 If the patient is less than 16 years of age, written consent can be given by a parent/guardian. If consent cannot be given by a parent/guardian or if a parent/guardian cannot be located, then application should be made to the Board for consent. As above.
ADMINISTRATION OF AN EPISODE OF EMERGENCY ELECTROCONVULSIVE THERAPY WITHOUT PATIENT CONSENT

Hospital: ____________________________________________________________

Mental Health Act 2009—Section 42 (6) and (7)

1. PATIENT DEMOGRAPHIC DETAILS

Address: ………………………………………………………………………………………………………………………………………………...
Suburb: ……………………………………………………………………..  Postcode:  ____  ____  ____  ____

2. ADMINISTRATION OF AN EPISODE OF EMERGENCY ECT

I have examined the patient, currently being treated at:
………………………………………………………………………………………… (print name of treatment centre)
and am satisfied that the following criteria for administering ECT without prior consent from the above
named patient are fulfilled:

(a) The patient has a mental illness of such a nature that administration of this particular epi-
    sode of ECT is urgently needed for the patient’s well-being; and
(b) In the circumstances it is not practicable to obtain consent.

3. DETAILS OF PSYCHIATRIST

Full name (Please print): ____________________________
Designation (Please print): ____________________________

Date: _____ / _____ / 20 _____  Time: _____ am/ pm
Work address (Please print): ____________________________

4. NOTIFICATION OF THE ADMINISTRATION OF EMERGENCY ECT.

Notification of the administration of an episode of ECT to a patient without patient consent must be
sent to the Chief Psychiatrist

NOTE: Under s42(7) of the Act, the psychiatrist administering or authorising the administration of an episode of ECT to a
patient without consent must ensure notification to the Chief Psychiatrist within 1 business day.

Please use black ballpoint pen when completing this form

SA Health
Created  May 2012

Page 1 of 2
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Patient and Carer Information
Electroconvulsive Therapy (ECT)

WHAT IS ELECTROCONVULSIVE THERAPY
Electroconvulsive Therapy (ECT) is a procedure performed under the direct supervision of a psychiatrist, who is assisted by an anaesthetist and a team of nurses. A general anaesthetic and muscle relaxant is administered while you are asleep then a small electric current is administered by electrodes to cause a therapeutic seizure.

HOW DOES ECT WORK
A lot of research has been done into the changes that occur within the brain after ECT treatment. It is known that after ECT the activity levels of different parts of the brain are changed, hormones are released, and signaling between brain cells is modified. The latest research studies suggest that ECT may even result in the growth of new brain cells, possibly a process to ‘repair’ impaired brain circuits that may be responsible for depression. There is currently no unified theory about how ECT works, leading some to claim that ECT is unscientific, or to reject it as a treatment.

WHEN & WHY IS ECT PRESCRIBED
ECT is used for severe depression, and sometimes for mania and schizophrenia, and might be used when medications have not worked or other forms of treatment are ineffective. It might also be used for people who have serious side-effects from medications or whose medical condition means they can’t take medications safely.

The decision to use ECT is based upon a thorough physical and psychiatric evaluation, taking into account your illness, degree of suffering, expected result and prognosis (outlook) if ECT is not given. In deciding to recommend ECT the treating team should have discussed with you the risks and benefits of any alternatives to ECT including psychological therapies and medication. ECT may also be recommended in the case of an emergency, such as suicidal risk, or other life threatening situations.

POTENTIAL BENEFITS OF ECT
If ECT is recommended, there is an expectation that ECT may help to relieve your current episode of illness and could help maintain improvements. ECT may work quicker and more effectively than other forms of psychiatric treatments such as medications and other treatments.

There is a growing body of scientific evidence that ECT is effective in improving depressive and psychotic symptoms of mental illness for some people.

POTENTIAL ADVERSE EFFECTS
Immediate adverse effects of ECT may include:
- Headaches
- Effects on the ability to think clearly i.e. mental confusion,
- Irregular heart rate, low blood pressure.
• Loss of memory about the events immediately before and after ECT
• Loss of autobiographical memory or possibly permanent loss of some specific past memories. But most people find their memory and their thinking improve/increase as a result of treating their illness.

Like any procedure involving an anaesthetic, ECT involves a small amount of risk, but overall, ECT is regarded as a very safe treatment.

MRI studies have shown that it does not damage the structure of the brain anatomy in any way, as the strength of the electrical current is too low to harm brain tissue.

CONSENT

The South Australian Mental Health Act (2009) states ECT can only be administered if the patient has a mental illness and ECT has been authorised by a psychiatrist (who has examined the patient) and consent has been given.

As a general rule, informed consent in writing must be obtained before ECT treatment is undertaken. Informed consent includes understanding the information presented about the nature of the treatment, the benefits, discomforts, risks, alternatives and why your psychiatrist believes this is the most appropriate treatment for you in the present circumstances.

Written consent to the ECT is required, and can be given:

• by the patient

• on behalf of the patient (i.e. by a medical agent, guardian, or if under 16 years a parent.)

• by the Guardianship Board (GSB) if the consent cannot be given by or on behalf of the patient, or if the patient is under 16 years of age

Applications to the GSB for ECT are made by a psychiatrist in cases where a person is not able to effectively consent themselves due to the current severe nature of the symptoms.

Number of ECT treatments per written consent

• each consent for ECT is for a maximum of 12 ECT treatments, administered over a maximum period of 3 months

• further courses of ECT can be separately consented after the first course has commenced.

Consent for ECT anaesthetic:

• the South Australian Mental Health Act (2009) states “Consent to the administration of ECT extends to the administration of anaesthetics required for the purposes of the ECT treatment.”

Emergency ECT

• an emergency treatment can be given prior to GSB consent provided an application for ECT is being made.

• a psychiatrist must assess the patient before each emergency treatment, authorise the treatment and complete a consent form within 24 hours of the treatment.

ASSESSMENTS BEFORE A COURSE OF ECT

You will be assessed by members of the mental health multidisciplinary team prior to ECT treatments.

The psychiatrist and anaesthetist will ensure you are medically stable prior to each
treatment. Psychiatric and nursing staff will assess progress and monitor symptoms and effects of treatment.

Before ECT your medical condition will be carefully assessed through:

- A complete medical history and psychiatric assessment including current medication
- Anaesthetic assessment
- Nursing assessment
- Cognitive and memory assessments
- Physical examination including dental assessment
- Laboratory screening (blood test)
- Scans of your brain and heart and chest x-ray may be ordered

**PREPARATION FOR ECT**

- Do not eat or drink from midnight before a morning treatment (or six hours before treatment). However you may need to continue taking medication as prescribed by your treating psychiatrist.
- Wear loose fitting clothing whilst you are having your treatment.
- Your hair should be washed, clean and dry. Hair conditioners and other hair/scalp treatments containing waxes or oils should not be used as they can interfere with treatment.
- All jewellery should be removed to prevent interference with treatment and monitoring electrode connections. Any nail polish should be removed, as this can interfere with some monitoring devices. Removal of tongue pierced jewellery before ECT is mandatory.
- You are asked to refrain from smoking for 24 hours prior to the treatment.

**ECT TREATMENT**

Nursing staff will greet you and then conduct nursing assessments before and after the ECT treatment, and will escort you to and from the treatment room.

The anaesthetist will prepare you for anaesthetic, administer the anaesthetic and closely monitor your physical state through the procedure.

The psychiatrist will apply the ECT treatment and monitor the effects

Though the actual treatment lasts only a few minutes, the process of preparation of ECT through to recovery typically takes one to two hours.

*Number of ECT treatments*: The Mental Health Act 2009 sets out conditions that guide the use of ECT. The average number of ECT treatments in a course of ECT is 6-12. The number depends on the assessments of your progress towards recovery.

*Frequency of ECT treatments*: usually given 2 or 3 times a week. While most patients start to improve after 3 or 4 treatments, some do not show a response until 10 to 12 treatments.

**AFTER EACH ECT TREATMENT**

You may feel disorientated on awakening. This has been described as like the first feelings on waking up in an unfamiliar bed. The confusion you may experience will normally settle within a few minutes or hours and you will recall where you are and that you have just had ECT.
After ECT treatment, a nursing assessment will be conducted to monitor your recovery after anaesthetic. If you are an inpatient you will be taken to your room. If you are a day patient you must stay in a supervised area for an hour or two after treatment.

**OUTPATIENT AND SAME DAY ECT**

If you are an outpatient, you will proceed to recovery stage two, be given breakfast and assessed prior to your discharge.

People having outpatient ECT need a responsible adult to come and pick them up from the hospital and stay with them for 24 hours. Your ECT coordinator will provide a form outlining safety instructions before discharge.

If your psychiatrist has prescribed ECT for you to be given as an outpatient, prior consent needs to be given; refer to “preparation for ECT” for details.

**After ECT treatment:**

A responsible adult (carer) must collect you and stay with you for 24 hours while you rest from the ECT treatment.

The carer must be given specific post-ECT instructions by the ECT nurse regarding your supervision over next 24 hours.

Under no circumstances are you to drive yourself home.

Under no circumstances are you to travel home unaccompanied after ECT treatment.

For 24 hours after the ECT treatment, you must not:

- drive a car
- drink any alcohol, including wine, beer and spirits
- make important decisions, such as signing important papers
- cook or use hazardous machinery
- engage in sport, heavy work or heavy lifting
- take sedative drugs not authorised by your doctor. Simple analgesia (pain relief) is acceptable

**Continuation and Maintenance ECT**

ECT is a highly effective treatment, particularly for depression. Some patients may also require continuation and maintenance ECT to prevent relapse.

Both Continuation ECT and Maintenance ECT are generally administered as outpatient treatment.

**For more information**

Speak to your mental health treatment team and ask any questions about your ECT treatment.

Local ECT team contact:
Titration and Treatment Schedule for **RUL Ultra Brief Pulse**
(0.3mSec pulse width)

**MECTA Spectrum 5000 Q**

<table>
<thead>
<tr>
<th>LEVEL</th>
<th>STIMULUS SETTINGS</th>
<th>LEVEL</th>
<th>STIMULUS SETTINGS</th>
</tr>
</thead>
<tbody>
<tr>
<td>T1 (Start RUL titration)</td>
<td>0.3ms/20Hz /1.0s/800mA 9.6 mC</td>
<td>R1</td>
<td>0.3ms/40Hz/3.0s/800mA 57.6 mC</td>
</tr>
<tr>
<td>T2</td>
<td>0.3ms/20Hz/2.0s/800mA 19.2 mC</td>
<td>R2</td>
<td>0.3ms/50Hz/5.0s/800mA 120 mC</td>
</tr>
<tr>
<td>T3</td>
<td>0.3ms/20Hz/4.0s/800mA 38.4 mC</td>
<td>R3</td>
<td>0.3ms/60Hz/8.0s/800mA 230.4 mC</td>
</tr>
<tr>
<td>T4</td>
<td>0.3ms/20Hz/8.0s/800mA 76.8 mC</td>
<td>R4</td>
<td>0.3ms/120Hz/8.0s/800mA 460.8 mC</td>
</tr>
<tr>
<td>T5</td>
<td>0.3ms/50Hz/5.0s/800mA 120 mC</td>
<td>R5</td>
<td>0.5ms/110Hz/8.0s/800mA 704 mC</td>
</tr>
<tr>
<td>T6</td>
<td>0.3ms/50Hz/7.5s/800mA 180 mC</td>
<td>R6</td>
<td>0.7ms/120Hz/8.0s/800mA 1075.2 mC</td>
</tr>
</tbody>
</table>

Titration – start at T1. Titrate down the “T” levels, then when threshold found, move across chart to “R” treatment level.

For subsequent dose increases, move down “R” levels.
Thymatron
Titration and Treatment Schedule for
RUL Ultra Brief Pulse
(0.3mSec pulse width)

<table>
<thead>
<tr>
<th>LEVEL</th>
<th>STIMULUS SETTINGS</th>
<th>LEVEL</th>
<th>STIMULUS SETTINGS</th>
</tr>
</thead>
<tbody>
<tr>
<td>T1</td>
<td>2%</td>
<td>R 1</td>
<td>12% (or 10%)</td>
</tr>
<tr>
<td>T2</td>
<td>4%</td>
<td>R 2</td>
<td>25%</td>
</tr>
<tr>
<td>T3</td>
<td>8%</td>
<td>R 3</td>
<td>50%</td>
</tr>
<tr>
<td>T4</td>
<td>15%</td>
<td>R 4</td>
<td>90%</td>
</tr>
<tr>
<td>T5</td>
<td>25%</td>
<td>R 5</td>
<td>150%</td>
</tr>
<tr>
<td>T6</td>
<td>35%</td>
<td>R 6</td>
<td>200%</td>
</tr>
</tbody>
</table>

Start titration at level 1. Titrate down the “T” levels, then when threshold found, move across chart to “R” treatment level. For subsequent dose increases, move down “R” levels.
# South Australian ECT Facility Inspection Criteria

## OFFICE OF THE CHIEF PSYCHIATRIST
ECT FACILITY INSPECTION REPORT

| Date……………………………………………. Inspection Number: ……………………… |
|------------------------------------------|------------------------------------------|
| Name of Occupier………………………………………………………………………………. |
| Name of Service………………………………………………………………………………. |
| Address of ECT facility ……………………………………………………………………. |
| Contact person…………………………………………………………………………………. |
| Telephone Number………………………. Fax number……………………………………… |

### Personnel present:

| Name…………………………………………. Title………………………………………… |
|------------------------------------------|------------------------------------------|
| ……………………………………………………………………………………………….. |
| ……………………………………………………………………………………………….. |
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### Inspectors Arrival Time: Departure Time:

<table>
<thead>
<tr>
<th>Reason for Inspection</th>
<th>Type of Service</th>
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</thead>
<tbody>
<tr>
<td>New application</td>
<td>Private Hospital</td>
</tr>
<tr>
<td>Renewal</td>
<td>Public Hospital</td>
</tr>
<tr>
<td>Amendment</td>
<td>Notes:</td>
</tr>
<tr>
<td>Monitoring</td>
<td></td>
</tr>
</tbody>
</table>

### Building Design

<table>
<thead>
<tr>
<th>Multi-purpose site</th>
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</thead>
<tbody>
<tr>
<td>Dedicated ECT suite</td>
</tr>
<tr>
<td>Operating suite</td>
</tr>
</tbody>
</table>

### Notes
### Procedure for sterilising equipment
- Suction apparatus
- Face marks/mouth pieces
- Infection control policy

### Drug supplies
- Anaesthetic drugs
- Resuscitation drugs
- Documented procedure for regular replacement drugs after use or expiry date
- Annual review of drugs

### QUALIFICATIONS OF PERSONS PERFORMING ECT
#### Clinical Director (ECT)
- Name: ..............................................................
- Title: ..............................................................
- Qualifications: ..................................................

#### Medical Officers
- Register of practitioners with privileges
- Specialist anaesthetist

#### Nursing Staff
- Coordination of nursing staff
- Nursing staff numbers (as per Guideline)

#### Training Education and Review
- Approved ECT administration course
- Register of CPR training
- Psychiatric & medical emergency response plan
- Quality Improvement Program

### STATUTORY REQUIREMENTS
#### Record Keeping
- MHA 2009 requirements
- Emergency ECT reporting
- Valid Consent
- Patient Information Sheet
- ECT data

#### Recommendation
- Recommended
<table>
<thead>
<tr>
<th><strong>Qualified</strong></th>
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</thead>
<tbody>
<tr>
<td>Recommendation subject to the following conditions</td>
</tr>
<tr>
<td><strong>Not recommended for the following reasons</strong></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Prepared by:</td>
</tr>
<tr>
<td>Signature:</td>
</tr>
<tr>
<td>Endorsed by</td>
</tr>
<tr>
<td>Name</td>
</tr>
<tr>
<td>Signature</td>
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</tr>
</tbody>
</table>
Cultural Diversity – Knowledge Skills and Attitudes of the Mental Health Professional Workforce

1. Mental health professionals demonstrate knowledge and understanding of:
   - social and historical factors relevant to the mental health and wellbeing of people from diverse cultural backgrounds living within the catchment area.
   - culturally appropriate assessment instruments and techniques and the way in which cultural issues may impact upon appropriateness of assessment and treatment.
   - cultural and ethnic differences, lifestyles, goals, family and community life
   - the availability and role of Aboriginal and Torres Strait Islander health and/or mental health workers, health consumer advocates/interpreters, bilingual counsellors, and other resources.
   - the role of culturally and linguistically appropriate advocacy and support systems
   - the interactions between culture, race, notions of mental health and mental health problems or mental disorders and appropriate interventions
   - communication issues for culturally and linguistically diverse people and problems with access leading to under-utilisation of mental health services.

2. Mental health professionals demonstrate skills in the ability to:
   - work collaboratively with primary health care workers and culturally specific mental health workers to ensure understanding of issues relevant to specific populations and to assist in empowering consumers, family members and/or carers.
   - conduct assessments that are culturally sensitive, in consultation with general professionals, Aboriginal and Torres Strait Islander health and/or mental health professionals, specialist transcultural mental health services or appropriate clinicians, and/or other advocates where relevant.
   - identify and provide culturally and linguistically appropriate interventions, which take into account the individual’s values and cultural and linguistic differences.
   - communicate effectively with the consumer and, where relevant, with family members and/ or carers through the assistance of Aboriginal and Torres Strait Islander health and/or mental health professionals, interpreter services and bilingual counsellors.
   - liaise and work collaboratively with culturally and linguistically appropriate allies such as religious ministers, traditional healers, local community-based organisations and other members of the Aboriginal and Torres Strait Islander or cultural community.
• develop treatment plans that are culturally and linguistically sensitive and provide culturally appropriate treatment, which is accessible and responsive to specific needs.

• assist managers to structure services to provide optimum access for different cultural and linguistic groups.

3. Mental health professionals exhibit attitudes and behaviours that demonstrate preparedness to:

• acknowledge consumers’, family members’ and carers’ cultural values and beliefs, and accept diversity.

• respect Aboriginal and Torres Strait Islander definitions and concepts of emotional health and wellbeing and recognise the impact of social, cultural and linguistic factors in health.

• understand the impact of the mental health service on the consumer’s, family’s and/or carer’s belief system.

• use a language and communication style that is culturally and linguistically sensitive.

• acknowledge and encourage clinicians, services or advocates who understand the appropriate cultural and linguistic issues to provide assistance and/or care and treatment with the consumer’s consent.

• acknowledge their limitations in knowledge of cultural and linguistic issues

• evaluate their practice in relation to cultural and linguistic appropriateness.

Mental health professionals are responsible to monitor their performance in regard to the above attributes and reflect on how their own practice is informed by knowledge, and recognise limitations in their knowledge and expertise and seek expert advice and supervision, as appropriate.