

USE OF ELECTROCONVULSIVE THERAPY (ECT) IN NEW ZEALAND: A REVIEW OF EFFICACY, SAFETY, AND REGULATORY CONTROLS

Commissioned by the Ministry of Health, New Zealand

December, 2004

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KEY TO EVIDENCE STATEMENTS AND GRADES OF RECOMMENDATIONS

Levels of evidence are based on the Scottish Intercollegiate Guidelines Network (SIGN) system

1 ⁺⁺	High quality meta-analyses, systematic reviews of randomised controlled trials (RCTs), or RCTs with a very low risk of bias*
1 ⁺	Well-conducted meta-analyses, systematic reviews of RCTs or RCTs with a low risk of bias
1 ⁻	Meta-analyses, systematic reviews of RCTs, or RCTs with a high risk of bias
2 ⁺⁺	High quality systematic reviews of case-control or cohort studies High quality case control or cohort studies with a very low risk of confounding or bias and a high probability that the relationship is causal
2 ⁺	Well-conducted case-control or cohort studies with a low risk of confounding or bias and a moderate probability that the relationship is causal
2 ⁻	Case-control or cohort studies with a high risk of confounding or bias and a significant risk that the relationship is not causal
3	Non-analytic studies, eg case reports, case series
4	Expert opinion

*Bias is error in a study that results in an incorrect estimate of the association between an exposure (eg ECT) and risk (eg of memory loss).

Grades of recommendation for research evidence

THE GRADING OF RECOMMENDATIONS IS BASED ON THOSE USED BY THE NEW ZEALAND GUIDELINES GROUP. FOR DETAILS OF THIS GRADING SYSTEM SEE WWW.NZGG.ORG.NZ

Note: The grade of recommendation relates to the strength of the evidence on which the recommendation is based. It does not reflect the clinical importance of the recommendation.

A	The recommendation is supported by good evidence
B	The recommendation is supported by fair evidence ⁻
C	The recommendation is supported by expert opinion and/or limited evidence
D	No recommendation can be made because the evidence is insufficient. Evidence is lacking, of poor quality, or conflicting, and the balance of benefits and risks cannot be determined
☒	Recommended good practice based on the clinical experience of experts and where guidance is needed.

Recommendations concerning regulatory controls of ECT

R	A single recommendation statement is used
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1 EXECUTIVE SUMMARY

1.1 Background

Electroconvulsive therapy (ECT) is used to treat a variety of severe mental illnesses. In New Zealand, ECT can be administered to patients without their consent, under the Mental Health (Compulsory Assessment and Treatment) Act 1992. Changes in attitudes to mental health, greater consumer involvement in treatment decisions, increased awareness of ethnic and cultural issues, and a petition requesting the banning of ECT, led the Ministry of Health to commission this review.

The goals of this review were to review:

1. the safety of ECT
2. the efficacy of ECT
3. the adequacy of regulatory controls on the use of ECT in New Zealand

1.2 Historical setting

ECT is a controversial medical treatment. The idea of passing an electrical current through a person's head to induce a seizure is offensive and upsetting to some people. It is accepted that ECT has not always been used appropriately. Continued uncertainty regarding the mechanism through which ECT works contributes to the debate.

Prior to the mid-1950s, ECT was delivered without anaesthetic or muscle relaxant (unmodified ECT), and a sine-wave (oscillating) current was used up until the 1970s. Modern ECT is delivered following a short-acting anaesthetic and muscle relaxant (modified ECT), and requires the administration of brief, fixed-dose, electrical energy to induce a seizure.

The intrusiveness of ECT and possible harmful effects, particularly on memory, has contributed to a wide range of opinions about the use of ECT. Many health professionals consider ECT to be a safe and effective treatment for certain forms of mental illness. Sometimes it is the only effective treatment and can be life saving.

1.3 Evidence

There are problems with the scientific evidence on which ECT is based. As many studies are small and include highly selected groups of patients, there are difficulties in generalising the findings to a wider range of people who may potentially benefit from ECT. Few studies compare ECT with simulated ECT and there is considerable variability in the methods of ECT administration across studies. Consequently, there are problems with extrapolating research findings to current ECT practice.

1.4 Safety

There are risks associated with the general anaesthesia administered before ECT. These are mainly related to the cardiorespiratory system. Special care should be taken when administering ECT to people with existing cardiac disease. ECT should only be administered by medical practitioners appropriately trained and experienced in the technique, including use of general anaesthesia.

Headache and minor confusion are common immediately following ECT. Older patients are at a higher risk of falls and injury when confused.

Many patients experience disturbances in memory following ECT. These disturbances usually resolve within a few weeks for most patients. A minority of patients experience long-term effects on memory, which is subjective and difficult to measure. It is also

difficult to separate the effects of ECT on memory from other causal factors, including personal factors, medical treatments, and other complications of illness.

1.5 Efficacy

It is most probable that ECT works through biological mechanisms, that of altering pathways or brain chemistry important in the regulation of mood. There is little evidence to support ECT working through behavioural modification.

ECT is an effective treatment and should be considered for use in high-risk patients, including those with severe depression, schizophrenia, mania or catatonia. High risk is indicated by: resistance to, or intolerance of, pharmacotherapy; mental or physical suffering severe enough to warrant treatment; high possibility of suicide, or self-neglect or harm.

1.6 Adequacy of regulatory controls

We do not consider the current regulatory controls to be entirely adequate.

We consider that ECT should remain available as a treatment option for certain groups of patients. However, ECT should not be provided to competent patients who refuse consent to it.

We recommend that an Advance Directive made by an appropriately informed and competent person, refusing consent to ECT in the circumstances which have arisen, be given the same effect as a contemporaneous refusal of consent by a still competent person

We recommend that, in the absence of a valid refusal of consent, ECT should not be withheld from patients simply because they did not consent to it (before becoming unable or unwilling to give or refuse consent).

We recommend that additional safeguards be put in place, so that there could be no possibility of patients being provided with ECT, without their informed consent, in circumstances which would not be regarded as appropriate by a significant body of informed professional opinion.

We recommend that the longer-term option of legislation should not serve as a reason for delaying the implementation of many of our recommendations.

1.7 Overall assessment

ECT is an effective short-term treatment for severe depressive illness, and certain other forms of serious and potentially life-threatening mental illness.

Although short- and long-term risks and adverse effects complicate ECT, these can be regarded as being at an acceptable low level in current modern clinical practice.

ECT should not be banned in New Zealand.

ECT should only be administered by appropriately qualified health professionals and under accredited guidelines.

The decision as to whether ECT is clinically indicated should be based on an assessment of the balance of potential benefits and risks to the individual, including the risks of anaesthesia, associated health problems, and potential adverse effects including impairment of memory.

Wherever possible, doctors should ascertain the views of patients (for whom ECT might well be an option), about the acceptability to them of ECT, before their competence is unduly impaired.

Amendments should be made to the law and guidelines relating to ECT to ensure greater emphasis on obtaining informed consent, use of Advanced Directives, use of guidelines, and prohibition of the use of ECT in competent patients who object to it.

2 INTRODUCTION

2.1 *Introducing the review*

In 1999, the New Zealand House of Representatives Health Committee considered a petition (1999/30) received from Anna de Jonge and others who claimed that:

ECT is degrading and inhumane, always causes brain damage (including memory loss), and that forced psychiatric drugging in hospitals and the community and outpatient committal legislation, breach section 10 of the New Zealand Bill of Rights Act 1990.

The petition was presented to Martin Gallagher and referred to the Committee on 10 May 2000. The current Health Committee of the 47th Parliament requested and received submissions from the Ministry of Health (MOH), the Mental Health Commission, and the Royal Australian and New Zealand College of Psychiatrists (RANZCP). It also heard evidence from the petitioner, Patient Rights Advocacy, the MOH, and Dr John Read of the University of Auckland. After reviewing all the evidence received, the Committee presented its findings in a report to the House of Representatives on 13 February 2003, which was referred to the Government in accordance with the Standing Orders.

The Health Committee's report made nine recommendations. These included recommendations that the MOH:

- undertake a review of the safety and efficacy of ECT, and the adequacy of regulatory controls on its use in New Zealand;
- develop a national data collection system on ECT usage;
- establish technical and quality standards to which District Health Boards (DHBs) must adhere;
- make available guidelines for ECT in all major languages, a code of ethics for the use of ECT, and protocols for treatment of Maori and other cultural groups.

In response to these recommendations, the MOH commissioned this review of ECT, to be undertaken by people who are independent of the disciplines involved in the use of ECT and who have particular expertise in relevant fields covering neurology, geriatrics, evidence-based healthcare, guidelines, and medical law. In addition, a Consumer Advisor was contracted to assist the review team.

2.2 *Goals of the Review*

The aim of the review was to:

- systematically review the existing scientific evidence on the safety and efficacy of ECT;
- review the published literature, Acts of Parliament and relevant current practices concerning the regulation and use of ECT in New Zealand and other like nations;
- take account of the views of consumers and the general public.

The review did not aim to:

- create new evidence regarding ECT, or audit existing services;
- undertake cost-benefit analyses of ECT;
- create technical or quality standards, or guidelines, for ECT;
- conduct exhaustive review of public opinion about ECT.

2.3 *Process of the Review*

The review group was convened by the MOH and consisted of a Professor of Medicine, with specialist qualifications in neurology and geriatrics (CA), a Professor of Law who specialises in medical law (PS), a Consumer Advisor (RW), two research fellows (MH, JS), and a third year medical student (AG) (see Appendix A). The Review Group had four face-to-face meetings, several teleconferences, and regular email communications, in order to plan, review progress, and agree on reporting of the review. Minutes were kept of all meetings.

In addition, the Review Group extended invitations to a variety of stakeholders including mental health experts, health care professionals, human rights advocates, consumers, and representatives of Maori and Pacific peoples, to form an expert Reference Group (see Appendix A). The two consumers on the Reference Group were nominated by their specific regional Consumer Groups; from both North and South Island networks. Two face-to-face meetings of these Groups were held in Wellington. Minutes were kept of these meetings. The Reference Group provided information on the practice of ECT and specific cultural and social issues directly relevant to the people of New Zealand. Members of the Reference Group were also invited to comment on drafts of the Report. To help incorporate the views of consumers, focus group meetings were undertaken by one member of the Review Group (RW) in Auckland, Hamilton, Wellington and Christchurch during June, 2004. An attendance record was kept of these meetings. Those who attended were also provided with a printed structured questionnaire and asked to provide written comments to listed open-ended questions regarding ECT. The information from the questionnaires was collated for major themes. In incorporating the views of the public, unsolicited public opinions were collated by one member of the Review Group (MH). In addition the Review Group also met with Dr John Read of the University of Auckland in July, 2004.

2.4 *Conduct of the Review*

In reviewing the scientific evidence, the Review Group used the guidelines methodology of the New Zealand Guidelines Group (NZGG) and the Scottish Intercollegiate Guidelines Network (SIGN). A comprehensive search of the published literature on ECT was undertaken, using as a basis the search strategies developed by the recent, comprehensive and high quality Review of ECT in depression in the United Kingdom (UK) (see Appendix B). The scope of the search included existing guidelines and systematic reviews gathered from review articles, bibliographic databases (Biological Abstracts, CINAHL, EMBase, LILACS, MEDLINE, PsycINFO) and selected major website resources. Retrieved reports were checked for inclusion by two authors (MH, AG). Potentially relevant reports were then read by three reviewers (CA, MH and AG) and independently assessed for quality. The authors reached agreement by consensus. Data on outcomes were extracted using previously designed data extraction tables. Assessment of study quality included evaluation of concealment of allocation, methods of randomisation, method of analysis, and loss to follow up.

A final search for randomised evidence on ECT was undertaken in July 2004 to include any relevant new publications that may have arisen since the UK ECT group completed their search. No new evidence that fulfilled these criteria was found.

In reviewing the adequacy of regulatory controls, one of the authors (JS) undertook a review of all statutes, case law, Health and Disability Commissioner opinions, journal articles, and relevant reports which pertained to the provision of ECT in New Zealand. A selective review was undertaken of journal articles, recent texts, and current and proposed statute law in Australia, Canada, the UK, and other countries, with regard to the provision of ECT. Californian legislation was also reviewed. The search covered online legal (Legaltrac, Lexis, Linx) and medical (Proquest) databases using search

terms 'electroconvulsive', 'shock treatment', 'electroshock', and 'electrotherapy'. Online searches were also undertaken of electronic journals (Psychiatric Bulletin, British Journal of Psychiatry, Advances in Psychiatric Treatment) using the terms 'electroconvulsive' and 'ECT'. Overseas legislation was accessed electronically either through legal databases (Austlii or Canlii), or via the websites of other relevant governments.

2.5 Completion of the Review

A draft of the Review was sent out for comment to a broad range of individuals, professional organisations, human rights, and consumer group stakeholders in the provision of ECT on the 4th October 2004. Eighteen formal comments were received (Appendix C). In addition, and despite the confidential nature of the draft, a number of unsolicited comments were also received. All submissions were considered in preparation of the Final Report, which was submitted to the MOH on the 3rd December 2004.

3 HISTORY OF ECT

ECT is a highly controversial medical treatment, both socially and scientifically. It was first developed by Italian doctors Cerletti and colleagues in 1938, on the basis of a Hungarian psychiatrist's (Meduna) mistaken observations that no patients with schizophrenia ever had epilepsy and conversely, no patients with epilepsy ever suffered from schizophrenia. The rationale was that electrically induced seizures (ie convulsions or fits) were beneficial in the treatment of schizophrenia. The apparent response to ECT was dramatic; previously untreatable and severely disabled patients showed early recovery from mental illness.

ECT subsequently became a popular treatment for a wide range of conditions. However, use of ECT decreased dramatically in the mid-1960s with the availability of medication (antipsychotic and antidepressant drugs), and because of increasing concerns over misuse and long-term adverse effects, despite improvements being made in the original technique.

Opponents of ECT have sought to regulate, or even ban, the use of ECT through legislation in a number of jurisdictions, and public fears and distrust persist about its role in health care. There are a number of reasons for this, as outlined below.

- There is much symbolism surrounding ECT. This relates to the use of electricity, not just as a 'simple' means of treating mental illness, but also in the management of patients who lack the capacity to make informed decisions due to being impaired in mental functioning. ECT conjures up strong images of electrocution and the process of passing electric currents through the brain and body is upsetting to some people. Proponents of social factors (eg poverty, child abuse and loneliness) as causes for mental illness do not accept that the use of ECT to alter biological systems in the brain is an effective treatment for mental illness. Their view is that ECT is a form of behavioural modification that is conveyed most dramatically and forcefully by an electric shock, similar to that of painful 'shock treatments' that have been used by the military to instil fear and compliance in prisoners.
- There are persisting images of the barbaric manner in which ECT was introduced into psychiatry in the 1930s after the discovery that a series of generalised seizures, initially with chemicals and later with an electric current, could cause the recovery of patients with severe and previously untreatable schizophrenia. The view that ECT was harm-free and potentially useful for a wide range of disorders of mood, created a wave of enthusiasm that led to a period of indiscriminate use (and misuse) of ECT in the middle of the 20th century. ECT developed a bad

reputation, enhanced by the obvious immediate painful and distressing side effects, including confusion, muscle aches, mouth trauma and sometimes limb fractures, caused by the induction of seizures without anaesthesia and muscle relaxants. Moreover, an increasing number of patients (and their families) complained of persistent disturbances in memory.

- The view of ECT as a potentially abusive procedure has been enhanced by the forced treatment of patients to control inconvenient (or disturbing) activity and behaviour that is resistant to medication. Cases of people having received ECT without consent have been well publicised in New Zealand, and in the entertainment industry, such as in Milos Forman's 1975 film *One Flew Over the Cuckoo's Nest*.
- Prior to the introduction of antipsychotic medication in the mid-1950s, ECT and psychosurgery were popular forms of psychiatric treatment. Psychosurgery is now rarely used, and only in a highly restricted manner. Yet, ECT continues to be used, despite there being continued uncertainty about its mechanisms of action. The fact that the mechanism of action of ECT is unknown undermines the credibility of the procedure for many people.

Proponents affirm that ECT is a safe and effective treatment for mental illness, and that contemporary clinical practice is very different from that of several decades ago. Concerns about ECT and the rights of patients, particularly those who are incapacitated by mental illness, have prompted a number of reviews and studies of ECT and its applications. With this closer examination, and advances in psychiatry and mental health care, the practice of ECT has undergone considerable modification and a subsequent narrowing of its use to highly selected groups of patients with specific disorders.

In New Zealand, ECT is only administered by professionally qualified and experienced teams of health professionals (comprising a psychiatrist, an anaesthetist, an ECT nurse, and a recovery nurse) in each DHB, and special provision is made for the compulsory treatment of patients pursuant to New Zealand's Mental Health (Compulsory Treatment and Assessment) Act 1992 (NZMH Act).

4 ECT TECHNOLOGY

In common with many other medical procedures, ECT has undergone a series of modifications both in the technology and technique, in order to maximise the benefits and minimise adverse effects for patients.

ECT involves the brief passage of an electrical current through the brain via electrodes applied to the scalp to induce a generalised seizure (ie a fit or convulsion). The seizure comprises two components: a central element, the ictus involving depolarisation (ie discharge of neurotransmitter chemicals) of brain cells, and a peripheral element of convulsive, jerking movements of the body, although this is now modified due to use of a short-acting anaesthetic and muscle relaxant, as part of what is called *modified ECT*. Modified ECT replaced the initial crude equipment and techniques of *unmodified ECT* from the mid-1950s. The seizure can now be detected by electrodes placed on the scalp to monitor brain electrical activity (ie EEG) and because of anaesthesia and muscle relaxant, patients usually experience or remember nothing of the procedure itself. While patients are under the anaesthesia, respiration is maintained through an airway placed within, and a breathing mask placed over, the mouth. Intubation and the placement of a tube into the trachea to assist respiration are rarely used in ECT.

The ECT electrodes can be placed on both sides of the head (bilateral placement), or on one side, usually the right side of the head (unilateral placement). The passage of an electrical current through the skull to the brain is necessary to trigger a seizure.

Due to the high electrical resistance of the skull, which causes most of the current to be dissipated into the scalp, there is considerable variation among individuals in the amount of electrical charge that is necessary to trigger a seizure (ie seizure threshold). Seizure threshold increases, and seizure duration decreases, with age. In contrast to older ECT devices, which provided a fixed high-dose electrical stimulus, modern ECT devices allow adjustment of the voltage in accordance with individual variation in seizure threshold and to allow different doses of electricity to be given.

Certain features of ECT are important in determining the degree of adverse effects and benefits produced, as outlined below:

- A generalised seizure with ECT is considered necessary to produce an effect because incomplete or partial seizures rarely benefit patients. Although the duration of a seizure does not seem to be important, a minimum of 25 seconds is generally recommended. 2⁺⁺
- Adverse effects of ECT increase with the amount of electricity used to produce a seizure. With right unilateral ECT, high dose (that is, using electrical charges that are several times greater than the seizure threshold) is required to attain benefits similar to that attained with bilateral ECT where the dose required is just above the seizure threshold. The degree to which the electrical discharge exceeds seizure threshold is also important in determining the degree of effects on memory. Moderate dose unilateral ECT is, therefore, often used as the initial standard treatment to balance potential benefits with a minimum of side effects. 2⁺⁺
- Up until the 1970s, most ECT devices used a sine-wave (oscillating) current, but since then, the standard practice is to use devices with brief (fixed) pulse, electrical stimulations. This change in the type of electrical stimulation was made to attain a seizure with the least possible electrical energy. However, there is no randomised evidence of improved efficacy of brief pulse over sine wave ECT, but there is some evidence of reduced adverse effects on memory. 1⁺⁺
- Most ECT is given 2-3 times per week, for about 2-4 weeks, to produce a response. Although there is some evidence that benefits appear quicker with more frequent treatment, this is counterbalanced by the potential for more frequent ECT to lead to more short-term cognitive impairment. Compared to low dose ECT, high dose (ie well above seizure threshold) ECT appears to have better efficacy but with greater adverse effects on cognition. 1⁺⁺
- Despite over 50 years of research, there is no firm explanation as to how ECT works. A popular contemporary theory is that ECT acts like an antidepressant to influence particular neurotransmitter pathways (ie dopaminergic, serotonergic and adrenergic systems) in the brain that are important in the regulation of mood. 4

There has been a recent audit of the use of ECT in New Zealand, commissioned by the MOH (authors M Tovey and A Duncan and available on the MOH website, see <http://www.moh.govt.nz>). The audit shows that ECT is undertaken by specialist, professionally qualified health professional teams, who use guidelines and modern machines, in all DHBs.



During modified ECT, a small amount of electric current is passed briefly across the brain to cause an artificial epileptic fit that affects the entire brain. Repeated treatments are believed to alter chemical pathways in the brain that are responsible for the mental illness in the first place.

- ECT should be administered only by qualified health professionals and under accredited guidelines.
- The decision to use bilateral or unilateral ECT, and the dose, frequency and number of sessions provided to a patient, should be made with careful consideration of the balance of potential benefits against possible side effects and regular clinical review involving the patient.

5 VIEWS OF USERS AND OTHER GROUPS ABOUT ECT

During the course of this review, members of the Review Group received a number of letters, emails and telephone calls from people, and relatives of people, who had experienced ECT, and from groups against ECT. A key theme in all of these submissions was that ECT has adverse effects. Whilst there is no strong evidence to support the claim that ECT can cause permanent brain damage, there were a number of consumers who did express short- and long-term memory dysfunction which was very real and in some cases very disabling to them. Whether or not ECT alone is responsible for all of the long-term memory loss reported is difficult to determine reliably in any individual. However, given the prevalence of the complaint, and presumed mechanism of action of ECT to alter brain pathways (and/or structure), the problems of memory loss as an adverse effect of ECT needs to be acknowledged.

In order to obtain a wider view of ECT among consumers and other members of the public, a series of focus group meetings were held in Auckland, Hamilton, Wellington and Christchurch during June, 2004. On the basis of responses to these meetings, and other reports received, the following conclusions were drawn:

- There is a wide range of opinions in the community regarding ECT, but amongst the participants who attended the meetings, negative views appeared to outweigh the positive views;
- The worst experiences of ECT were expressed by participants who were treated prior to the use of modern ECT procedures;
- Some participants provided positive views of the benefits of ECT, despite experiencing ongoing memory problems;
- Participants wished to be better informed about ECT, its benefits and risks, and of alternative therapies prior to receiving ECT;
- Few participants wished to see the banning of ECT, but rather that it should be offered to people as a treatment of choice.

6 SCIENTIFIC EVIDENCE REGARDING ECT: AN OVERVIEW OF THE ISSUES

In order to provide safe and effective health care for people, high quality scientific evidence is needed, and it must be readily available to healthcare providers, consumers, researchers, and policy makers. However, there are certain issues (or limitations) that need to be considered when reviewing scientific evidence, and particularly the scientific evidence for ECT.

Randomised controlled (clinical) trials (RCTs), which test the effects of a treatment in two (or more) groups of subjects, provide the best level (ie highest quality) of scientific evidence upon which to draw conclusions and make health care decisions. This is because RCTs are, in general, low in sources of bias (ie errors in design or measurement) and the play of chance (ie simple random differences between groups). However, unless RCTs include a large and wide range of subjects in different health care settings, the results may only be relevant to people within a specific context. Ideally, RCTs need to be relevant to a diverse range of people who need the treatment. RCTs are easily undertaken on selected groups of people who have certain common characteristics, which means that the results are limited to a certain degree by selection bias. This means that the results may only be applied to similar, well-defined groups of patients.

All healthcare interventions, drugs, physical treatments or otherwise, have the potential for harm as well as benefit. Even the use of aspirin, proven beyond doubt to prevent cardiovascular disease and improve survival in high-risk patients, carries a small but definite risk of serious haemorrhage in approximately one out of every thousand patients treated. Healthcare professionals need to know if the potential benefits outweigh any risks for individual patients; but this calculation is often not so straightforward. A further concern is that numbers of patients needed to treat (NNT) and numbers of patients needed to harm are often not measured on comparable scales of benefit and harm. If an intervention has major life saving benefits, then it is likely that these will outweigh relatively infrequent (or minor) adverse effects.

Reviews that are systematic (ie that gather all of the published and unpublished literature on a subject in a pre-specified, organised manner) are a highly efficient way of integrating all the valid information and providing a basis for making rational decisions. Systematic reviews establish where the effects of interventions are consistent across all the available evidence, and how the results can be applied across different populations and settings.

To this end, the Review Group met with considerable challenges when synthesising data from multiple sources to assess the potential risks and benefits of ECT. These relevant issues are considered below.

- There is considerable methodological heterogeneity across studies of ECT. This includes variation in not only the characteristics of included patients, methods of diagnosis, type of control (comparison) groups, and assessment of outcomes, but also in the form of ECT being administered, including machine type, dose, electrical parameters, electrode placement, and frequency and total number of sessions. Moreover, most studies have had poor design features, such as small samples of patients and inappropriate methods of statistical analysis, which increase the likelihood of bias (ie error) occurring when assessing associations between ECT and outcomes. The 'ideal' (ie. least biased) RCT design for ECT is a comparison of 'real' ECT against simulated (ie sham) ECT, where patients receive all aspects of the treatment including a general anaesthetic but without the passage of electricity. There are few ideal RCTs of ECT. 1⁺⁺
- Despite these criticisms, it must also be recognised that undertaking RCTs on ECT is particularly challenging. RCTs, by their very nature, are complicated by varying degrees of selection bias as they tend to include more 'clinically stable' (ie in better health) patients who have provided written informed consent to participate in research. These patients also have personal characteristics and other factors that give them a high potential for adherence to a study protocol and treatment. This selection bias raises issues of external validity (or the generalisability) of the data to the wider patient population. This issue is particularly relevant to RCTs of ECT, where many potentially eligible patients with severe illnesses were excluded, while many included patients had previously 1⁺⁺

received ECT. Finally, RCTs are not designed to allow reliable detection of rare but important adverse events. All of these factors reinforce a common criticism of research in psychiatry, that included study participants are often not representative of all those who may require treatment.

- Another important aspect that determines the quality of research is the sample size required to detect a clinically meaningful effect of a treatment; that is, how much of a difference between groups is considered reasonably meaningful. Although only 50-100 participants may be all that is required in studies to detect a few points difference in mood scores, many more participants are required to detect significant differences in disease endpoints such as 'remission of depressive illness'. Unfortunately, most studies of ECT have included less than 100 patients; the two largest RCTs included 200-250 patients. In addition, treatment effects are often attenuated in RCTs as all included patients are likely to be more 'biologically robust' and are managed within a socially enriched environment by virtue of their participation alone. That is, there is a background 'placebo effect' occurring in the patient group in which the effects of ECT are being evaluated. 1⁺⁺
- A key requirement of the assessment of a treatment effect, both in clinical practice and research, is for patients to achieve a therapeutic dose of medication for an adequate period of time. In this regard, it is now recommended that antidepressants be continued for at least four months beyond the time of initial recovery, and that treatment should be changed if no response has been shown by 6-8 weeks. Yet, most trials of ECT for patients with depression have had only a short period of follow-up (usually only up to 4-6 weeks), with very limited data on the long-term consequences of ECT. 1⁺⁺

A

The review of the scientific evidence on ECT is complicated by:

- many problems with the design of studies in ECT, such as the selective nature of included patients, small sample sizes, inappropriate outcome measures and short periods of follow-up;
- early research on ECT often not being relevant to current clinical practice;
- the paucity of well-designed 'ideal' studies of modified ECT.

7 EFFICACY OF ECT

Several high quality systematic reviews and other research evidence have evaluated the role of ECT as a treatment for selected groups of patients with mental illness. Indications for ECT may include depression, schizophrenia, mania, catatonia and general neurological disorders. Major depression is the main indication for the use of ECT, and the disorder for which the largest body of evidence exists.

7.1 Depression

The term 'depression' is used to describe a natural variation in mood in response to internal and external factors, a clinical syndrome, or a specific illness, depending on the pattern and degree of abnormal mood symptoms, and associated disturbances in thinking and behaviour. There is continued uncertainty over the relative importance of genetic and environmental factors in the aetiology of depression, and numerous conceptual models have been developed to aid research and management. Experts continue to debate the relative merits of determining whether individuals need

treatment according to specific diagnostic categories, such as 'minor depression' (or dysthymia), 'major depression', or 'post-partum depression', versus that according to continuous dimensional states based on the profile and severity of symptoms. Current thinking is that depressive illness should be viewed as a chronic illness, with 50 to 80% of patients having at least one other episode in their lifetime. Given the high rate of relapse following successful response to treatment for an episode of depression, long-term maintenance antidepressant medication or regular psychological therapy is recommended for people with repeated episodes of depression. The economic and social impact of depression is considerable. As well as a reduced quality of life, depression increases the risk of death and disability due to malnourishment and dehydration, and of suicide as a means of escaping deep psychological distress.

- In the short-term (ie over several weeks), real ECT is more effective than simulated ECT for improving depressive symptoms. Compared with unilateral ECT, bilateral ECT is more effective for improving depressive symptoms but is associated with greater post-ECT confusion and a higher risk of memory loss. High dose ECT is more effective than low dose ECT. There is uncertainty regarding differences in long-term memory loss between these approaches. 1⁺⁺
- In the short-term (ie over several weeks), real ECT is more effective than drugs for improving depressive symptoms. However, many RCTs have used antidepressant medication of a type, dose, and duration that would be considered to offer low levels of therapeutic benefit in current clinical practice. Conversely, only a few RCTs explicitly stated that patients needed to have failed to respond to at least one antidepressant before being included, suggesting that the therapeutic benefit of ECT may be even greater in severely depressed patients. 1⁺⁺
- There is limited randomised evidence on the long-term outcome from ECT; there is only one RCT that assessed mood scores at 6 months, and it showed a trend in favour of simulated ECT. 1⁻
- No study has examined the impact of ECT on social functioning and quality of life.
- Non-RCT evidence suggests that ECT reduces length of initial hospital stay but relapse rates are high after an acute response to ECT. 2⁺
- The combination of ECT with pharmacotherapy does not appear superior to ECT alone in producing a response, but it may prevent relapse. 1⁺
- ECT is considered a useful lifesaving treatment for severe depression, yet there is no definitive randomised evidence that ECT prevents suicide. This could be explained on the basis of the small sample sizes of included studies and the low risk of suicide among included patients. Conversely, there is no evidence that ECT increases the risk of suicide, which theoretically could occur if there is rapid improvement in a patient's will to commit the act before there is improvement in symptoms. 1⁻
- Relapse rates are high within a few months after successful treatment of an acute episode of depression with ECT. However, this can be explained as much on the basis of the characteristics of patients who usually receive ECT (ie patients with severe and medication-resistant depression) as it can on a limited short-term effectiveness of ECT. 1⁺
- Of the few RCTs that have been undertaken to assess the effectiveness of different forms of maintenance therapy following ECT, there is some evidence to suggest that maintenance antidepressant medication, with or without a mood stabilising drug such as lithium, prevents relapse of depression. 1⁺

- There is only non-randomised evidence to suggest that maintenance ECT, used every 1-3 weeks, is safe and effective in selected groups of patients, usually older people, who are acutely responsive to ECT and for whom pharmacotherapy alone is either ineffective or unsafe. | 2⁺
- While ECT may be an effective acute treatment, it does not alter the circumstances that may predispose to, or precipitate, depression. Even if a patient's depression is totally internal (ie endogenous, biological or 'genetic') as opposed to external (eg due to adverse life events), there are still support systems and other social factors that need to be addressed (or implemented) to help prevent relapses. In this regard, the integration of medical, psychological and social services is highly desirable for effective delivery of mental health services. | 2⁺

A

ECT should be considered in patients with severe forms of depression that:

- are resistant to (or intolerant of) medication, and where psychotherapy is not indicated or is considered inappropriate;
- place patients at a high risk of suicide or neglect;
- are associated with mental and/or physical suffering severe enough to warrant a treatment with a rapid onset of therapeutic action;
- have responded to ECT and require maintenance ECT.

7.2 Schizophrenia

Schizophrenia affects approximately 1% of the population, has an early age of onset, is chronic, and is associated with considerable social disability and mortality risk. Although there is continued uncertainty about how best to classify schizophrenia, psychiatrists and neurologists generally agree that it is a disorder of thinking, emotion, and behaviour. The illness is most commonly manifested by a disturbance in thinking and in the perception of self and the environment, displayed in speech, writing and behaviour. When associated with delusions, hallucinations, and other certain features, the illness is described as psychotic. In the most severely affected patients, thinking is totally disintegrated and there is an inability to concentrate and provide appropriate self-care. Patients may be unable to do more than utter a series of meaningless phrases or neologism, or they may be mute and idle. Extreme agitation and emotionality in response to threatening hallucinations or delusions can lead to suicide. When this is associated with considerable disturbance of mood, the illness may be described as a schizoaffective disorder.

- Compared with simulated ECT, real ECT is more effective in improving the speed and degree of recovery in general clinical state and symptoms of schizophrenia in the short-term (ie over several weeks). However, many of the RCTs have methodological problems that may bias the outcomes. | 1⁻
- There is limited evidence on how these effects translate into behaviour, social functioning and quality of life. | 3
- There is some evidence to indicate beneficial effects of ECT on the prevention of relapse and reduction in length of hospital stay. | 3
- There is some evidence of the early benefits of ECT being maintained over the medium to long term. | 3
- There is evidence to indicate that modern antipsychotic medications such as clozapine are more effective than ECT overall, but that ECT is effective in medication-resistant people. | 1-

- Limited evidence suggests all symptoms and signs of schizophrenia, albeit in the more severe cases mainly enrolled in studies, benefit from ECT. | 1-

B

ECT should be considered in patients with schizophrenia that:

- is resistant to (or intolerant of) antipsychotic medication; or
- is associated with mental and/or physical suffering severe enough to warrant a treatment with a rapid onset of therapeutic action.

7.3 *Mania*

Mania is characterised by elated, euphoric or irritable mood, and increased energy. The term may refer to a mental illness or a mood state, and mania is associated with bipolar affective (mood) disorders. In severe episodes of mania, individuals are psychotic and require continual supervision to prevent physical harm to themselves and others.

- There is insufficient RCT evidence to draw firm conclusions regarding the effectiveness of ECT in mania. Non-randomised evidence suggests that ECT may be beneficial in patients with treatment-resistant mania, or where there are psychotic symptoms, and that response to treatment may be more rapid than with medication. | 2⁺⁺

B

ECT should be considered in patients with mania where it:

- is resistant to (or intolerant of) medication, and where psychotherapy is not indicated or is considered inappropriate; or
- is associated with mental and/or physical suffering severe enough to warrant a treatment with a rapid onset of therapeutic action.

7.4 *Catatonia*

Catatonia is a syndrome that is associated with schizophrenia and affective disorders. It is characterised by marked changes in muscle tone or activity that may alternate between the extremes of a deficit of movement (catatonic stupor) and excessive movement (catatonic excitement). Furthermore, a syndrome recognised as a potential complication of certain medications, the neuroleptic malignant syndrome, may be clinically indistinguishable from catatonia. Patients with catatonia are at high risk of complications including malnutrition, urinary retention, infections, venous thrombosis and metabolic changes inducing renal failure.

- Non-RCT studies suggest that ECT is an effective treatment for catatonia with rapid resolution of symptoms | 3

C

ECT should be considered in patients with catatonia that:

- is resistant to (or intolerant of) medication, and where other treatments are not indicated or are considered inappropriate; or
- is associated with mental and/or physical suffering severe enough to warrant a treatment with a rapid onset of therapeutic action.

7.5 Neurological disorders

There is one small RCT suggesting a short-term benefit of ECT in patients with and without depression in association with Parkinson's disease. Case series indicate that ECT may have an anti-Parkinsonian effect on motor functioning, with maintenance ECT improving 'on-off' symptoms of the condition. There are case series of use of ECT in other conditions such as phantom limb pain, Huntington's disease, facial dystonia, neuroleptic malignant syndromes, and status epilepticus.

3

C

ECT should be considered an experimental therapy in patients with certain forms of neurological disease, in particular those associated with disturbance of mobility and self care.

8 SAFETY OF ECT

Much of the debate and controversy over ECT relates to the frequency and significance of adverse effects, which has been complicated by the slowness in obtaining high quality research evidence due to the complexities in the assessment of memory loss, and the slowness in acceptance by some professional groups that such outcomes are real and significant in people's lives. Moreover, the spectrum and degree of adverse effects associated with modified ECT are different from that of earlier, unmodified ECT.

Adverse effects of ECT may be considered according to: physical complications, potential brain damage, memory loss, and mortality.

8.1 Physical complications

The physical risks of ECT are related to three different sources: (a) the general anaesthesia; (b) the effects of electrical stimulation on the cardiovascular system; and (c) the musculoskeletal effects of the seizure.

- With modern anaesthetic techniques and use of muscle relaxants, modified ECT is a safe procedure, with serious and potentially life-threatening complications occurring in less than 0.1% of people (ie less than 1 in 1,000 treatments). Anaesthetic techniques, staffing and facilities for ECT should, therefore, be comparable to standards applicable to patients undergoing general anaesthesia. Appendix F includes Australian and New Zealand College of Anaesthetists recommendations on minimum facilities for safe anaesthesia practice. 2
- Of the rare complications of ECT, aspiration pneumonia is the most serious – but the risk of this occurring is significantly reduced by fasting and use of an antacid, and by endotracheal intubation with cricoid pressure in selected cases. However, minor complications, such as headache and mild confusion, are more common. Older people are at greater risk of complications, in part due to the higher frequency of physical frailty and other medical conditions (and medications) associated with their mental illness. 2
- ECT's effects on the cardiovascular system are due to the significant activation of a certain component of the nervous system, the autonomic nervous system: stimulation of the parasympathetic nervous system begins immediately after electrical stimulation, which causes bradycardia (ie slowing of the heart rate) and very occasionally, asystole (ie a cardiac arrest due to the cessation of heart muscle contraction). When the seizure occurs there is activation of the sympathetic nervous system resulting in increased blood pressure and heart rate, 2

and very occasionally cardiac arrhythmias. Patients who suffer from pre-existing heart conditions, such as coronary artery disease, are at greater risk of having a cardiovascular complication, although most are minor, transient, and readily treated by the attending doctor. Moreover, such adverse effects appear to occur less often with ECT than they do with antidepressant medication in these high-risk patients.

- Traumatic complications during ECT are generally prevented by use of short acting muscle relaxants. However, as these drugs do not prevent contraction of the jaw muscles, tooth-protectors are used to prevent damage to the teeth. As a consequence of confusion and agitation, which are common after ECT, older patients are at a higher risk of falls and injury, such as a hip fracture, than younger patients. 2

A

- General anaesthesia should be administered by a medical practitioner who is appropriately trained and familiar with the requirements of ECT.
- ECT is associated with the small risk of general anaesthesia, mainly related to effects on the cardiorespiratory system. There are no absolute contraindications for ECT but special care should be taken in people with existing health conditions, in particular cardiac disease.
- Anaesthesia and recovery facilities and staffing should meet relevant standards applicable to patients undergoing general anaesthesia.

8.2 Changes in the brain

The assessment of the effects of ECT on the brain is complicated by the high frequency of pre-existing changes in the brain that are the result of natural ageing, associated cardiovascular risk factors including hypertension, and early changes from Alzheimer's disease that may cause (or predispose an individual to) the onset of depressive illness as the first manifestation. There is some evidence to support an effect of ECT on the structure of the brain.

- Several studies using sophisticated imaging techniques of the structure and function of the brain have found no evidence that ECT causes permanent damage to the brain in humans. 2
- However, research in animals indicates that seizures which are targeted at specific sites in the brain, or that are prolonged and recurrent, can modify the structure of certain areas which are likely to be related to mood and memory. 3

C

There is some evidence to indicate that ECT causes changes to the structure, and presumed function, of the brain. This could explain both the beneficial effects and the adverse effects of ECT.

8.3 Memory loss

Measurement of the effects of ECT on the cognitive functions of memory and thinking is complex. There are several reasons for this: depression and antidepressant medication can impair memory; many neuropsychological and brief bedside tests of memory are insensitive to subtle but clinically significant changes in memory and thinking; mood, personality, and earlier experiences of life events and illness influence complaints of memory loss; measurement of adverse effects of multiple ECT

treatments is confounded by the recurrent nature of mental illnesses which often leads to the need for repeat ECT; and studies have often included too few subjects to provide enough statistical power to demonstrate reliably the effects of ECT. The major adverse effects of ECT are on memory and can be considered according to the time periods of immediate, medium (short-term) and long term.

- Immediately after ECT, patients are often confused and disorientated, which is comparable to usual experiences of people following a generalised seizure. These immediate effects may last from a few minutes to several hours, depending on the technique used, and are worse for bilateral, sinusoidal wave, high dose, and frequent ECT. 2
- The effects of ECT on memory are usually subtle, difficult to measure, and of variable significance to individuals. Some patients report improvement in their thinking and memory after ECT, while others report impairment in retrograde (previous) and/or anterograde (making new) memory. For most patients, memory impairment resolves within several weeks. These adverse effects of ECT on memory appear greater with bilateral ECT. 2
- The few RCTs that have examined the long-term effects of ECT on memory report no differences between groups, but they are complicated by potential bias. Other reports, however, indicate that ECT may permanently affect memory, and sometimes this can be of major personal significance and of considerable concern to some individuals. There is no good evidence that ECT contributes to, or accelerates the onset of, dementia. 2

B

Disturbance of memory and thinking occurs in many patients after ECT, but:

- while this usually resolves within a few weeks, some patients may experience severe and prolonged confusion, which may be complicated by other illness in older patients;
- a significant minority of people experience long-term effects on memory which in some cases has a disabling impact on daily life;
- consumers who have experienced ECT have highlighted adverse effects on memory both short and long term;
- more information is required on how best to inform consumers about this adverse effect of ECT.

8.4 Mortality

There is no evidence that mortality associated with modern ECT is greater than that associated with minor operative procedures involving a general anaesthetic. RCTs are limited by short-term follow-up but non-randomised studies suggest that patients who receive ECT may have improved survival compared to those who do not receive ECT. 2

B

There is no evidence that ECT carries any more risk of death than a general anaesthetic. There is no evidence that ECT reduces life expectancy.

9 ECT IN SPECIAL GROUPS

There is insufficient randomised evidence to make conclusive statements regarding the balance of benefits and risks of treatment in specific groups of patients. In particular, there is a distinct lack of ethnic-specific data on the frequency and outcome of ECT in New Zealand.

9.1 *The elderly*

ECT is often a treatment for older people with major depression because of associated medical problems (eg cardiovascular disease or general frailty), poor tolerance of antidepressant medication (eg postural hypotension and confusion), psychotic features, or marked disability resulting from rapid weight loss or physical deconditioning associated with the depressive illness. Non-RCT evidence indicates that ECT is relatively safe and effective. However, special care needs to be taken due to the associated problems, including existing health problems, although the response to ECT appears more related to the severity of illness than to age. Although the complications of ECT appear to be greater in the elderly, untreated depressive illness is by itself a more serious threat to life in this age group. There is no good evidence of an interaction between age and memory loss following ECT, but unilateral ECT is often the preferred method because of concern about side effects, especially memory loss.

B

ECT should be considered carefully, and according to protocols and guidelines, in the elderly, if the mental illness:

- is resistant to or intolerant of pharmacotherapy, and where psychotherapy is not indicated or not considered appropriate; or
- is associated with mental and/or physical suffering severe enough to warrant a treatment with a rapid onset of therapeutic action.

9.2 *Adolescents and children*

Mental illness in adolescents represents a growing public health concern. As well as a direct link to the increasing rates of suicide in the community, attention is also drawn to the associated morbidity from lowered scholastic and occupational achievement, and impaired social functioning. The problem of severe and medication-resistant mental illness in adolescents is often encountered in clinical practice. The very limited non-RCT evidence indicates that ECT is safe and effective in the young, where the response to treatment can be rapid and sometimes dramatic. However, given the potential adverse effects of ECT on memory, the use of ECT in children and adolescents should be made after all other treatment options have been explored and after careful consideration of the balance of potential early benefits against long-term hazards.

C

ECT should be considered carefully, and according to protocols and guidelines, in adolescents and children, if the mental illness:

- is resistant to or intolerant of pharmacotherapy, and where psychotherapy is not indicated or is considered inappropriate; or
- is associated with mental and/or physical suffering severe enough to warrant a treatment with a rapid onset of therapeutic action.

9.3 Cultural considerations

The NZMH Act, the Code of Rights, and the National Mental Health Sector Standard require that providers deliver care with proper recognition and respect for a person's cultural and ethnic identity and religious or ethical beliefs. This includes, but is not limited to, consideration of the role of family and community in a person's illness and treatment, and particular beliefs such as the sacredness of the head for Maori.

It is widely accepted that cultural identity plays a significant part in the wellness of individuals and their communities. Given that Maori and Pacific peoples are significant cultural groups in New Zealand, mental health professionals should ask those people who identify with a specific culture group, whether they would like access to cultural assessment and support. All mental health providers must ensure that they offer cultural safety for Maori and Pacific people.

The Review Group was made aware that Maori and Pacific peoples have particular concerns about ECT, and of the importance of their special values and needs being recognised. Care needs to be taken in preparing Maori and Pacific people and their families for treatment with ECT. For example, among Maori, the Maori treatment model Te whare tapa wha may be relevant and a patient's family may want to be more closely involved and consulted regarding specific cultural preferences and concerns. In these circumstances, the indications for ECT and all aspects of the process need to be very carefully considered and explained in a culturally sensitive manner.



There is no evidence on the use of ECT for specific cultural groups in New Zealand. ECT should be considered carefully for Maori and Pacific peoples where.

- Cultural assessment has been provided for those who identify with a specific cultural group and who wish to have access to such services.

9.4 Pregnant women

In common with other medical treatments, the decision whether or not to use ECT in pregnant women needs to take into account the risks associated with medication, the risks to the mother and foetus of withholding ECT, and any complications of the pregnancy which may increase the risks associated with ECT or the anaesthetic. The limited evidence available indicates that ECT is no less effective or associated with greater risk in pregnancy. ECT does not seem to increase the risk of uterine contractions and foetal abnormalities. Careful maternal physiological monitoring is necessary and adequate control of hypertension induced by ECT may be required.



ECT should be considered carefully, and according to protocols and guidelines, in pregnant women (given careful maternal physiological monitoring) if the mental illness:

- is resistant to or intolerant of pharmacotherapy, and where psychotherapy is not indicated or is considered inappropriate; or
- is associated with mental and/or physical suffering severe enough to warrant a treatment with a rapid onset of therapeutic action.

9.5 Disabled people

There is a paucity of information on the impact of ECT specifically on people with significant disabilities. Such patients are likely to have been excluded from RCTs. While the potential increased risks of ECT among people with cardiac disease has

been emphasised in Section 8, it also needs to be stressed that the impact of confusion and longer term memory loss may be considerable in those who are blind or visually impaired, or have other pre-existing sensory loss. It is important that health professionals are aware of the broader impact of impairments and disabilities on the lives of people.



ECT should be considered carefully, and according to protocols and guidelines, in disabled people if the mental illness:

- is resistant to or intolerant of pharmacotherapy, and where psychotherapy is not indicated or is considered inappropriate; or
- is associated with mental and/or physical suffering severe enough to warrant a treatment with a rapid onset of therapeutic action.

10 ACTS OF PARLIAMENT AND THE REGULATION OF ECT IN NEW ZEALAND

10.1 *Authorisation of ECT in New Zealand*

Until 1992, New Zealand law did not contain any provisions that dealt specifically with ECT. However, New Zealand's Mental Health (Compulsory Assessment and Treatment) Act 1992 ("NZMH Act") includes a section that deals expressly with the provision of ECT. One issue for this review is whether the current legal regulation is adequate.

Category 1 ECT provided with consent, apart from the NZMH Act

The first category comprises the many instances where ECT is provided with the consent of patients in respect of whom the provisions of the NZMH Act have not been invoked. In some of these cases patients would not have met the criteria for treatment under the NZMH Act. In others, the NZMH Act could have been utilised but there was no need to do so, as the patients voluntarily sought or agreed to treatment.

In these cases, the legal regulation is the same as that provided for health care procedures generally. Important amongst them are rights 6 and 7 of the Code of Health and Disability Services Consumers' Rights 1996 ("Code" or "Code of Rights").

The effect of right 6(1)(b) of the Code is that a patient must be provided with an explanation of the options available, including an assessment of their expected risks, side effects and benefits (if a reasonable patient, in that patient's circumstances, would expect to receive such information).

By virtue of Right 7(1) of the Code, a voluntary patient's informed consent is usually required for the provision of ECT, as for other health care procedures. The requirement for consent is a stringent one. Because of the special (and unusual) definition of 'informed consent', which is applicable in this context, a health professional's failure to meet the information disclosure obligations in Right 6 could invalidate the consent. In practice, though, this issue has not caused significant problems.

Where informed consent to ECT is required, consent must be in writing (see Right 7 (6), esp (c), (d)).

Category 2 ECT provided with consent, under the NZMH Act

The second major category comprises those instances where ECT is provided with the consent of a patient who is currently subject to the NZMH Act. Sometimes the consenting patient will be subject to the compulsory assessment provision of the Act; in other cases, a compulsory treatment order will have been made.

Section 60 of the NZMH Act makes special provision for ECT. The preceding sections apply to the generality of mental health treatments, and have the effect of authorising treatment without consent, and without any obligation to obtain a second opinion, while the patient is undergoing assessment (section 58) or during the first month after the making of a compulsory treatment order (section 59 (1)). Section 60 then provides:

60 Special provision relating to electro-convulsive treatment

Notwithstanding anything in section 58 or section 59 of this Act, no patient shall be required to accept electro-convulsive treatment for mental disorder unless

- (a) the patient, having had the treatment explained to him or her in accordance with section 67 of this Act, consents in writing to the treatment; or
- (b) the treatment is considered to be in the interests of the patient by a psychiatrist (not being the responsible clinician) who has been appointed for the purposes of this section by the Review Tribunal.

Paragraphs (a) and (b) of section 60 are identical to paragraphs (a) and (b) of section 59(2), which provides for treatment of mental disorder generally *after* the first month of a compulsory treatment order. Section 60 has the effect of excluding ECT from the treatments a responsible clinician can provide without consent (or a second opinion) during the period of assessment, and then for the first month of a compulsory treatment order.

Paragraph (b), the most controversial aspect of section 60, will be discussed below (Category 3). Here, the focus is on paragraph (a). It accepts that some patients who are subject to compulsion under the NZMH Act will nevertheless be capable of giving a legally effective consent. Paragraph (a) imposes two requirements: (i) that the patient be provided with an explanation of the expected effects of the treatment, (including the expected benefits and likely side-effects) in accordance with section 67; and (ii) that the patient consents in writing. (In practice, these requirements are very similar to those imposed by the Code of Rights: see Category 1 above).

ECT is often provided on the basis of patient consent (ie under paragraph 60(a)) to patients who are subject to compulsory assessment and/or treatment under the NZMH Act.

Category 3 ECT provided without consent, under the NZMH Act

Section 60(b) of the NZMH Act, quoted above, has the effect of authorising the non-consensual provision of ECT, when the treatment is considered to be "in the interests of the patient" (who is subject to the compulsory assessment or compulsory treatment provisions of the Act) by "a psychiatrist (not being the responsible clinician) who has been appointed for the purposes of the section by the Review Tribunal". In practice, this psychiatrist will often be a colleague of the responsible clinician; sometimes their roles will alternate.

Section 60 is best seen as providing a gloss on sections 58 and 59, rather than standing entirely apart from them. Hence, in law as well as in practice, the responsible clinician must support, or at any rate accept, the decision of the psychiatrist appointed by the Review Tribunal that ECT be provided even in the absence of consent.

Section 59(4) of the NZMH Act states that:

'The responsible clinician shall, wherever practicable, seek to obtain the consent of the patient to any treatment even though that treatment may be authorised by or under this Act without the patient's consent.'

It is surprising that section 59(4) of the Act does not stand apart from the rest of section 59, which deals with treatment while subject to a compulsory treatment order (rather than also the earlier period when the patient is undergoing assessment under the Act). However, section 59(4) is best taken to apply to all the circumstances in which treatment may be provided compulsorily under the Act, including section 60(b). It would be desirable for this to be put beyond doubt when the Act is next amended.

By virtue of section 67, patients who are being treated without consent are also entitled to receive an explanation of the expected effects of ECT (including expected benefits and likely side effects) before treatment is commenced.

The adequacy of section 60(b) will be considered later. At this stage it is sufficient to note its effect.

10.2 Provision of ECT in New Zealand

Granted that the provision of ECT is lawful, whether on one of the three grounds discussed above, or (much less commonly) on some other ground, New Zealand law requires that the administration of ECT be performed with reasonable care and skill - or, to put in another way, without negligence (see eg Crimes Act 1961, ss155-156).

Right 4(1) of the Code of Rights (see above) has the effect of requiring all health care procedures to be provided with reasonable care and skill. Right 4(2) is closely related to right 4(1). It requires all health care procedures to comply with legal, professional, ethical, and other relevant standards. Guidelines of the RANZCP and of other organisations would be highly relevant in this context, as would technical and quality standards accepted by the MOH and professional bodies (see Appendices D and F).

Aggrieved patients, or anyone else, may complain to the Health and Disability Commissioner if they believe there has been a breach of the Code of Rights. If the Commissioner is of the opinion that the Code has been breached, disciplinary proceedings or other consequences may follow.

Thus far, the Commissioner has received very few complaints relating to ECT.

11 LEGAL REGULATION OF ECT IN LIKE JURISDICTIONS

In commissioning this review, the Ministry indicated that the review should take account of legislation in like jurisdictions. One of the Reviewers (JS) has compiled an account of many such jurisdictions (up until 31 March 2004) as well as a fuller account of New Zealand law than that which appears in Section 10, above, in a separate report accompanying this Review. It is made available, along with this Review, on the MOH Website (www.moh.govt.nz). The following is an abbreviated version of the executive summary of that report.

11.1 Provision of ECT in England

There have been significant attempts at reforming the MH Act in England. Despite recommendations by the expert panel appointed to advise the government in relation to reform of the Act, the draft Bill retains the authority to provide ECT to a competent involuntary patient on the basis of approval by the Tribunal in the absence of consent, as well as the ability to provide emergency ECT. The Draft Mental Health Bill 2002 may appear to broaden the circumstances in which ECT may be given by omitting to describe the circumstances authorising the provision of ECT. However, when read in conjunction with the NICE Guidelines (England and Wales), there are significant restrictions in the circumstances in which ECT is an appropriate therapy in England. The Bill is significant in that it confers upon compliant non-compulsory incapacitated patients similar protections in regard to ECT as exist under the Act for compulsory patients.

11.2 Provision of ECT in Scotland

The Mental Health (Care and Treatment) (Scotland) Act 2003 permits ECT to be given to a consenting patient when it has been certified that the patient is competent, consents, and having regard to the likelihood of ECT alleviating, or preventing a deterioration in, the patient's condition, it is in the patient's best interests that ECT be given. In the case of an incompetent patient, the process differs depending upon whether the patient resists or objects to ECT. If the incompetent patient does not object, ECT may be given when having regard to the likelihood of it alleviating, or preventing a deterioration in, the patient's condition, it is in the patient's best interests that ECT be given. In the case of an incompetent patient who objects, ECT may only be given if emergency circumstances exist. ECT may not be given to a competent patient who refuses ECT. The new Act also makes special provision for advance directives.

11.3 Provision of ECT in Australia

Queensland

The Queensland legislature has enacted the most recent mental health legislation in Australia. Under the Mental Health Act 2000 (Qld), ECT may be given at an authorised hospital, and in the case of voluntary patients, either when the specified informed consent provisions of the Act are met, or if a voluntary patient is incompetent, with the approval of the Tribunal unless the person is known to object to ECT.

ECT may be given to an involuntary incompetent patient without consent when, after considering the application of a psychiatrist, the Tribunal is satisfied that the patient is incompetent and that ECT is the most appropriate treatment in the circumstances having regard to the person's clinical condition and treatment history. It may also be given in emergency circumstances when a psychiatrist and the medical superintendent certify in writing that performing ECT is necessary to save the patient's life, or to prevent the patient suffering irreparable harm. A treatment application must be made to the Tribunal immediately after certification. ECT may not be given to an involuntary patient who refuses ECT in any other circumstance.

Under the Act, decisions of the Tribunal may be appealed to the Mental Health Court.

Western Australia

ECT may be given to a voluntary patient provided the necessary informed consent requirements specified in the Act are met. Informed consent is not required in emergency circumstances.

The Mental Health Act 1996 (WA) permits the provision of ECT to an involuntary patient on the basis of a second medical opinion that ECT has clinical merit and is appropriate in the circumstances. Regard must be paid to whether the patient is competent and has consented or refused, but is not determinative of the decision. ECT may be given to an involuntary patient without a second opinion in circumstances of emergency.

Proposals from a group appointed to review the MH Act have resulted in an Advisory Group on ECT being set up to provide advice and recommendations to the Chief Psychiatrist on the future developments of best practice and monitoring of ECT in Western Australia. The MH Act review group has also proposed more stringent requirements on treating involuntary patients non-consensually in general, including review of treatment decisions by an independent body.

Specific recommendations were made in relation to ECT. It was recommended that state-wide statistics should be collected to monitor the extent of the use of ECT, notwithstanding that the review group had been presented with a considerable body of medical evidence that ECT could be highly beneficial to significant groups of people suffering mental illness. It was recommended that all second opinions obtained in

relation to ECT should be reported to the Chief Psychiatrist. It was the opinion of the review group that the provision in the Act permitting emergency ECT should be repealed.

A further recommendation made was that urgent review by a Board or Tribunal should be undertaken where ECT is proposed for minors, with prohibition for minors under the age of twelve. For minors over the age of twelve, it was recommended that the second opinion of a psychiatrist should be someone with specialist training in child and adolescent mental illness.

Victoria

In Victoria, a capable patient has the right to refuse ECT, unless the circumstances constitute an emergency.

In the case of an incompetent involuntary patient, ECT may be provided when an authorised psychiatrist is satisfied of the following factors. Firstly, that the proposed ECT has clinical merit and is appropriate, and having regard to any benefits, discomforts or risks it should be performed. In addition the authorised psychiatrist must be satisfied that any beneficial alternative treatments have been considered and that unless the ECT is performed, the patient is likely to suffer a significant deterioration in his or her physical or mental condition. All reasonable efforts must have been made to notify the patient's guardian or primary carer of the proposed ECT. The decision to administer ECT in these circumstances is essentially a clinical one and not subject to any formal mechanism of external oversight. However, the Authorised Psychiatrist may only provide ECT to a patient who is incapable of giving consent, and not to a patient who is unwilling to give consent. No other person who is lawfully entitled to consent to medical treatment on behalf of the patient may override a patient's refusal or consent to ECT.

Premises providing ECT in Victoria must be licensed pursuant to the Act. Key licensing criteria set the minimum acceptable standard for premises at which ECT is to be performed, and address the suitability of the applicant to hold a licence, the suitability of the premises, the equipment and the suitability of the qualifications of persons performing ECT. There is an emphasis on safety, privacy, and designated staff with designated responsibilities. A licence must be renewed every five years.

New South Wales

The stringent informed consent provisions of the MH Act 1990 (NSW) are significant as they are the only Australian State with provisions which expressly state that possible loss of memory should be disclosed to a patient when informing a patient of discomforts and risks associated with ECT.

New South Wales is also the only Australian State to require certification by two medical practitioners that ECT is a reasonable and proper treatment having considered the person's clinical condition, treatment history and alternative treatments, and is necessary or desirable for the safety, or welfare of the person in the case of a voluntary patient consenting to ECT.

Where a patient is involuntary, approval by the Tribunal must be obtained prior to performing ECT as well as certification by two medical practitioners, regardless of whether the patient has consented or not.

A capable involuntary patient who objects to ECT may have that objection overruled under the MH Act 1990 (NSW). A legally appointed guardian cannot consent to ECT on behalf of an incompetent person. It is mandatory to keep an ECT register, which may be inspected at any time.

Northern Territory

The Mental Health and Related Services Act 1998 contains comprehensive informed consent requirements. ECT may only be provided where these requirements are met.

In the case of an incompetent person the Tribunal may authorise ECT, provided it is satisfied that the person is incompetent and after receiving certification from two authorised practitioners that they are satisfied after considering the person's clinical condition, history of treatment and other appropriate alternative treatments, that ECT is a reasonable and proper treatment to be administered and that without the treatment the person is likely to suffer serious mental or physical deterioration. Reasonable efforts must be made to consult a person's primary care provider, or in the absence of one a person who is closely involved in the care of the person.

ECT may be performed on an incompetent involuntary patient only when two authorised psychiatric practitioners are satisfied that it is immediately necessary to save the person's life; to prevent the person suffering serious mental or physical deterioration; or to relieve severe distress. In these circumstances, the practitioners must make a report to the Tribunal as soon as practicable after it is performed. ECT may not be given to a competent patient who refuses ECT.

ECT premises must be licensed under the Act. A medical practitioner who performs ECT in contravention of the Act is guilty of professional misconduct. The holder of a licence must submit a monthly return of the details of ECT performed on the premises.

Australian Capital Territory

The Mental Health (Treatment and Care) Act 1994 authorises the provision of nine applications of ECT when consent is obtained in accordance with the Act.

Tribunal approval must be obtained in the case of all involuntary patients who either consent to ECT, or who are incapable of consenting to ECT. An application for an ECT order may be made by the Chief Psychiatrist or a doctor and must be supported by the evidence of a psychiatrist who is not the applicant. The order will only be given by the Tribunal in the case of a competent person, if it is satisfied that consent has been given and not withdrawn. In the case of an incompetent person, the Tribunal must be satisfied of the patient's incompetency, that ECT is likely to result in substantial benefit to the person and that all other reasonable forms of treatment available have been tried but have not proved successful, or it is the most appropriate form of treatment reasonably available.

Mandatory recording and reporting of ECT is required under the Act to the person in charge of the institution at which the therapy is administered.

South Australia

ECT may be administered when it is authorised by a psychiatrist and a patient consents to it or, if the patient is incompetent, consent has been given by a legally appointed person authorised to consent on the patient's behalf. When there is no one who can provide consent, the consent of the Board will suffice. ECT may be provided when it is needed urgently for the protection of the patient or other people, and in the circumstances it is not practicable to obtain consent.

11.4 Provision of ECT in Canada

Ontario

Most Canadian Statutes do not have specific provisions relating to ECT. In Ontario, a competent patient may refuse medical treatment, whether voluntary or involuntary. This provision extends to when they are incompetent but have previously expressed a wish regarding ECT when competent.

In the case of incompetency, a substituted decision-maker must consent or refuse treatment in accordance with a previously expressed competent wish of the patient. This emphasis on self-determination and autonomy in Ontario has attracted criticism on the grounds that in some circumstances it may result in serious harm to the patient, including continued suffering and long periods of unnecessary detention. Moreover, there are very limited rights of appeal.

In the absence of a previously expressed wish, the substitute decision-maker must act in accordance with the best interests of the patient.

Quebec

The Civil Code of Quebec provides that no person shall be made to undergo care, treatment or any other act, except with consent. A substitute decision maker consents or refuses treatment on behalf of an incompetent patient, or in the absence of one, the Court may make a decision. Where an incompetent patient categorically refuses care to which a substitute decision maker has consented, authorisation by the Court is necessary. The Court will determine whether the patient is incompetent and whether the treatment is in fact necessary. This essentially provides an independent review mechanism.

Quebec has recently published an in depth review of ECT. The authors of the report made recommendations in regard to informed consent and the need for further research regarding safety and efficacy. They recommended strengthening existing institutional and professional regulation of ECT, and the formulation of guidelines.

Alberta

The MH Act (Alb) permits a substituted decision maker to make a treatment decision on behalf of an incompetent involuntary patient in accordance with what the substitute decision maker believes is in the best interests of the patient. Where an involuntary patient is believed to be incompetent and the patient objects to treatment, treatment cannot be given on the basis of the substitute decision-maker's consent, unless a second medical opinion corroborates a finding of incompetency.

In the case of an involuntary but competent patient who objects to treatment, if a physician is of the opinion that the treatment is in the patient's best interests, the physician may apply to the review panel to order treatment be administered on the grounds that it is in the patient's best interests.

11.5 Provision of ECT in California

The extensive provisions of the Californian Code prohibits the provision of ECT to a person who is capable of giving informed consent but refuses to do so, whether voluntary or involuntary. The risk of memory loss, and the fact that there is a division of opinion as to the efficacy of the treatment, must be disclosed to the person.

ECT may only be given to an involuntary patient if the treating physician enters adequate documentation of the reasons for ECT, including that all reasonable treatment modalities have been carefully considered, and that the treatment is definitely indicated and is the least drastic alternative available for the patient. The patient's treatment record must then be reviewed by a committee of two physicians, who must agree with the decision of the treating physician. A relative of the patient's choosing, or guardian if the patient wishes, must also be given an oral explanation of the treatment by the treating physician. The patient must give informed consent, and the patient's attorney must agree as to the patient's capacity. If the physician or attorney believes the patient is incompetent to give written consent, then an application must be made to the Superior Court to determine capacity. If the Court finds incapacity, then ECT may be performed upon gaining informed consent from the responsible relative or guardian. At any time during a course of ECT, a person who has been deemed incompetent has the right to claim regained competency.

A physician must also document in the case of a voluntary patient the reasons for ECT, that all reasonable treatment modalities have been considered carefully, and that ECT is indicated and is the least drastic alternative available. A psychiatrist or neurologist must verify that the patient has the capacity to give and has given written informed consent. If the patient does not have capacity, application to the Court for determination of capacity must be made.

California prohibits ECT for children under the age of 12 years. Minors between the age of 12 and 15 may only receive ECT if, in the addition to other provisions authorising ECT, the circumstances are life-threatening and three child psychiatrists appointed by the MH Commission are unanimously in favour of ECT.

12 CONSIDERATION OF REFORMS TO THE REGULATION OF ECT IN NEW ZEALAND

12.1 *Should ECT be banned?*

The petition to Parliament that led to the commissioning of this report sought the banning of ECT.

R After examining all the evidence, we have concluded that ECT should not be banned because:

- a ban would deprive some seriously ill patients of an effective treatment;
- a ban would be an unwarranted restriction on patient and clinical choice;
- the evidence indicates that ECT is currently a valid treatment option in some circumstances.

12.2 *Should there be greater emphasis on providing information about ECT and to ascertaining, and giving effect to, individual patient's views about the acceptability of ECT?*

Increasing emphasis is being placed on the involvement of patients in decisions about treatment. We welcome this development, and consider it can and should be taken further in the area of mental health treatments in general, and ECT in particular.

The value of patient involvement is much reduced if patients are not provided with the best available information about the advantages (ie benefits) and disadvantages (ie risks and/or consequences of not having the treatment) of relevant treatment options. Although individual clinicians will continue to play an important part in communicating information in a way that is relevant to patients, we believe that in the case of ECT there should be adequate time to consider the options (but where consideration is also given to the urgency of treatment) and that it be supplemented with an information sheet or pack (possibly including a video or DVD) summarising the best available evidence and other information.

Ideally, discussion between a clinician and a patient about ECT, and the acceptability or otherwise of such treatment to the patient, will take place before the patient's illness has reached a state that ECT is indicated. In practice, this will not always occur. However, if advanced directives (ADs) are given the role we recommend below, it is especially desirable that, wherever possible, the option of ECT is discussed with a patient in advance, while they are fully competent – or, at worst, while their competence is relatively unimpaired.

R We recommend that:

- the MOH consult with interested parties (including the RANZCP, the Health and Disability Commissioner, the Mental Health Commission, and mental health consumers) about the development, adoption, and regular review of an ECT information sheet (or pack) for the benefit of consumers throughout New Zealand;
- wherever possible, doctors ascertain the views of patients (for whom ECT might well be an option), about the acceptability to them of ECT, before their competence is unduly impaired.

12.3 Should ECT be provided despite the refusal of consent of a competent patient?

A finding of incompetence to consent, or of incompetence to refuse consent, is not at present required before a patient can be compulsorily assessed and treated under the NZMH Act. Furthermore, several provisions of the NZMH Act indicate that a patient who is subject to compulsion under the Act may nevertheless be capable of giving a legally effective consent to treatment (see sections 59(2)(a), 60(b), 61 (a)).

In recent decades, there has been increasing emphasis on a competent patient's right to refuse treatment. It is nearly forty years since a New Zealand judge said (in a case where the patient's competence was not in doubt) that "An individual patient must, in my view, always retain the right to decline treatment however unreasonable or foolish this may appear in the eyes of his medical advisers." Since then, many judges have made comments to the same effect, sometimes when a patient's life was at stake, sometimes where mental health treatment was under consideration.

In New Zealand a "right to refuse to undergo any medical treatment" is enshrined in section 11 of the New Zealand Bill of Rights Act 1990. (However, this bald statement in section 11 should be read in the light of important qualifications elsewhere in that Act – including section 5, which provides in part that the rights in the Act are subject to "such reasonable limits prescribed by law as can be demonstrably justified in a free and democratic society". It has also been held that the word "Everyone", at the beginning of section 11, means "Every competent person".)

The question whether competent patients should be able to refuse mental health treatment is currently a matter of controversy in many countries that share New Zealand's legal traditions and social values. This matter (and the related issue of the role of ADs in mental health care) will require consideration in relation to a wide range of mental health treatments in future. This review is not the occasion for a full consideration of these matters. Our concern is whether there are special considerations that come into play in relation to ECT.

Given the strong feelings that ECT engenders, and the controversy that continues to be associated with its use, we have concluded that there should be no question of ECT being administered to a *competent* patient who *objects* to its being administered (or, to put it another way, who *refuses consent* to it).

We are aware that this recommendation will lead to a greater focus on competence than has previously been the case under the NZMH Act. However, judgements about patient competence already play a part in the many circumstances where patients consent to mental health treatment outside the Act, and sometimes within it (see eg s60(a), quoted in 10.2, Category 2, above). Such judgements are also required in many other medical and legal contexts.

In practical terms, this recommendation may be of less significance than the one which follows. This is for two reasons. One is that we have no reason to believe that ECT is commonly administered to competent patients against their will. The other is that a high level of competence is required by law in the case of a refusal that is likely to have serious consequences for the patient. (The more serious the consequences of consent, or a refusal of consent, the higher the level of competence that is required.)

Insofar as section 60(b) of the NZMH Act authorises the provision of ECT to competent patients, despite their refusal of consent, we do not consider this to be acceptable, given the high value now placed on patient autonomy and the right to make an informed choice.

R

We recommend that:

- ECT not be provided to competent patients who refuse consent to it;
- as soon as the opportunity arises, the NZMH Act be amended to remove any possibility of competent patients being provided with ECT against their will;
- given that amendment of the NZMH Act may take some time, we recommend the MOH formulate guidelines to the NZMH Act to advise psychiatrists that in reaching an opinion about the interests of a patient (in terms of section 60(b)) they recognise that a patient's interests are not exclusively medical, and that they should take account of what is known about a particular patient's values and priorities. (In this context, a contemporary refusal of a competent patient is a highly relevant consideration.)

12.4 Should ECT be provided if (when competent and adequately informed) the (now) incompetent patient executed an AD, indicating that he or she objected to the provision of ECT in the circumstances that have now arisen?

The increased emphasis on patient involvement in decision-making, and on the right of competent patients to refuse even life-saving treatment, has been accompanied by increased interest in the role of ADs. We understand that the Mental Health Commission is currently considering the role of ADs in mental health treatment generally. Our focus here is specifically on the role of ADs in relation to ECT.

No New Zealand statute makes express provision for ADs in any healthcare context. (The Protection of Personal and Property Rights Act 1988 does make provision for an enduring power of attorney, but it cannot be used to provide proxy consent to ECT: see sections 18(1)(d), 98(4)). However, right 7(5) of the Code of Rights, which was made in 1996 in exercise of powers conferred by the Health and Disability Commissioner Act 1994, does provide that:

“Every consumer may use an advance directive in accordance with the common law.”

For the purpose of the Code, AD means (see clause 4) any written or oral directive:

- (a) by which a consumer makes a choice about a possible future health care procedure; and
- (b) that is intended to be effective only when he or she is not competent.

The Code's affirmation that patients may use an AD “in accordance with the common law” leaves open the question of what role an AD has at “common law” (as distinct from statute law). At common law, an AD will rarely have the effect of requiring a clinician to provide treatment that would not otherwise be provided (cf the English case of *R (on the application of Burke) v General Medical Council*, which is currently under appeal). A patient cannot, for example, effectively direct doctors to provide dialysis (or ECT), in circumstances in which the doctors do not consider it to be clinically appropriate.

However, in the absence of statutory provisions authorising the provision of treatment without consent (eg NZMH Act), ADs can be legally effective as a means of providing consent, or refusing consent, to treatment.

There is ongoing uncertainty about how informed a refusal must be for it to be legally effective. (Cf. *Auckland Area Health Board v Attorney-General* [1993] NZLR 235, 245, where Justice Thomas referred to the right to refuse medical treatment, and said that section 11 of the New Zealand Bill of Rights Act 1990, quoted above, “sets out this fundamental right”. He continued: “It has been held overseas, and would accord with my thinking, that this right enables a patient, *properly informed*, to require life-support systems to be discontinued.”)

The role of ADs is often more straightforward in legal theory than in medical practice. The Mental Health Commission and the Health and Disability Commissioner have recently published a helpful pamphlet entitled “Advance Directives in Mental Health Care and Treatment: Information for mental health services” (available at http://www.hdc.org.nz/files/pagepublications/brochure_mentalhealth.pdf). In it, the question “Will my advance directive always be followed?” is answered “No”. The reasons given were quite apart from the fact that the NZMH Act sometimes has the effect of permitting an otherwise effective AD to be overridden. The pamphlet explains

“When deciding whether or not to follow your advance directive, your clinician will consider five questions:

- Were you competent to make the decision when you made the advance directive?
- Did you make the decision of your own free will?
- Were you sufficiently informed to make the decision?
- Did you intend your directive to apply to the present circumstances, which may be different from those anticipated?
- Is the advance directive out of date?”

Given some people's strong feelings about ECT, either in general or in their own particular circumstances, we favour patients being able to make ADs, while competent, refusing consent (or, alternatively, giving consent) to ECT.

In the case of an AD prohibiting ECT, in the stated circumstances, it is important that the person making it has been provided with the best available information about ECT and of the circumstances in which it might otherwise be provided. The issues are simplest where a person has already been provided with a course of ECT and is determined never to receive it again. However, there is no warrant for restricting the right to refuse ECT to patients who have already been provided with it. With other people - particularly those who have never experienced, and may find it hard to understand, the health conditions where ECT is typically provided - the provision of adequate information is an especially important stage in the process which may lead to the making of an “anticipatory refusal of consent” (as this form of AD is sometimes described).

The anticipatory refusal of consent may have implications for the patient that are every bit as far-reaching as the giving of consent. “Informed refusal” is as important as “informed consent”; both are aspects of “informed choice”.

It is important that people are aware of the significance of what they are doing when they make an AD (more specifically, an anticipatory refusal of consent) in relation to ECT. If (as we recommend) effect is given to such an AD, these patients will not be provided with the treatment which doctors caring for them may believe to be in the patients' best interests. In consequence the patients may spend longer in deep depression, and hospitalised, than would otherwise be the case. (This is not to minimise the implications of consenting to ECT, which may also be far-reaching.)

A passing comment “If I were ever depressed, I wouldn't want ECT” should not, without more, suffice as a valid AD in this important context. Some degree of formality is desirable. Wherever possible an AD should be in writing, with someone attesting to the person's knowledge and competence at the time the AD was made. Ideally, the AD would be reconsidered and reaffirmed (or modified or withdrawn) every few years.

These details concerning ADs will be for others to determine. If the proposals about ADs which may well emanate from the Mental Health Commission are accepted, this may well have a bearing on ADs relating to ECT. However, given the ongoing controversy relating to ECT, we recommend that ADs be accepted in relation to ECT,

whether or not they come to have a much wider role in other respects under an amended NZMH Act.

R

We recommend that:

- an AD made by an appropriately informed and competent person, refusing consent to ECT in the circumstances which have arisen, be given the same effect as a contemporaneous refusal of consent by a still competent person;
- as soon as the opportunity arises, the NZMH Act be amended to ensure that effect is given to ADs whereby a person, when competent and appropriately informed, records an advance refusal of consent to ECT in the circumstances which have now arisen;
- given that amendment of the NZMH Act may take some time, we recommend that guidelines to the NZMH Act, issued by the MOH, indicate that an AD, made by an adequately informed and competent person, and objecting to the provision of ECT in the circumstances which have now arisen, should be given the same weight as a contemporary refusal by a still competent person.

12.5 Should ECT be withheld from patients whenever patient consent has not been given?

We are clear that ECT should not be provided to competent patients who refuse consent to it, or to (now) incompetent patients who (when competent) made an AD (which they have not withdrawn) refusing consent to it.

Furthermore, if our recommendations are accepted, there may be fewer cases where patients have not indicated in advance whether or not they would find ECT acceptable in the circumstances which have now arisen.

There will, however, continue to be situations where the possibility of ECT could not have been, or at any rate was not, anticipated in advance – or where, for a variety of reasons, no AD has been made. If the consent of a competent patient were always required before ECT could be provided, patients whose illness has progressed to a stage where they are no longer competent would sometimes be deprived of the treatment which, in the expert opinion of those responsible for their care, provides the best hope of alleviating their condition. Avoidable suffering, and even deaths, would result. For this reason, we are opposed to any suggestion that ECT should never be provided without patient consent.

The previous paragraph focused on patients who are no longer competent, but for whom ECT provides the best hope of alleviating their condition. However, we are informed that there are occasionally other patients who may well be competent, but whose depression is such that they neither consent nor refuse consent when the matter is raised with them. The concept of competence is a somewhat malleable one, and it might be possible to reclassify such patients as incompetent. Rather than require that this be done, we recommend that ECT not be withheld from these patients, when it is appropriate, given that they have not refused consent to ECT when given the opportunity to do so. Such patients should not be prevented from receiving the treatment that, in the informed opinion of those responsible for them, provides the best hope of alleviating their condition.

R

We recommend that, in the absence of a valid refusal of consent, ECT should not be withheld from patients simply because they did not consent to it (before becoming unable or unwilling to give or refuse consent).

12.6 Should additional safeguards be put in place to ensure that, especially where ECT is provided without consent, its provision is in accordance with a significant body of informed professional opinion?

Under section 60(b) of the NZMH Act, a patient (who is being assessed and treated under that Act) may be provided with ECT without consent if the treatment is considered to be “in the interests of the patient” by a psychiatrist (not being the responsible clinician) who has been appointed for the purposes of the section by the Mental Health Review Tribunal.

We understand that appointments by the Tribunal are relatively routine, most appointees having obtained their specialist qualification (FANZCP or equivalent) a few years before their appointment. Many will be colleagues of the patient’s treating psychiatrist, and by no means all will have particular expertise concerning treatment with ECT.

As the law stands, a patient could be provided with ECT without consent, pursuant to section 60(b) of the NZMH Act, in circumstances which would not commend themselves to psychiatrists with particular expertise in these matters. *We do not consider this to be satisfactory.*

The review of Australian legislation (Section 11.3 above) provides examples of factors, which could well be spelt out in New Zealand legislation and guidelines, which psychiatrists should be required to take into account before deciding whether to provide ECT (to a patient who has not refused consent to it).

Other measures might also help. One would be for the RANZCP, or some other professional body, to adopt guidelines setting out anew the clinical circumstances in which it may be appropriate to provide ECT without consent (assuming that the circumstances are ones where New Zealand law permits the provision of ECT without consent). Another would be the appointment of a designated person or persons, with special expertise, who would be consulted if the case were not a routine one. This may be particularly appropriate if the patient is a child or adolescent.

The safeguards will have to be consistent with the realities of clinical practice. Too many checks and balances may result in avoidable suffering for patients. However, too few could leave vulnerable patients with inadequate protection from a handful of practitioners who may be out of line with wider professional opinion and knowledge. When the treatment is in effect mandated by the state, this is a particularly unsatisfactory state of affairs.

R We recommend that additional safeguards be put in place, so that there could be no possibility of patients being provided with ECT, without their informed consent, in circumstances which would not be regarded as appropriate by a significant body of informed professional opinion.

12.7 Should there be detailed legal regulation of the clinical circumstances in which ECT is provided?

It would be possible to provide very specific legal regulation of ECT: for example, the information which must be disclosed before consent is given, the psychiatric conditions for which it may be administered, and the equipment that must be used.

However, given the time lag that invariably precedes detailed legal regulation, there would be an unacceptable risk of such laws lagging behind developments in good practice, as well as providing an unhelpful restriction on development and innovation.

An alternative to detailed legal regulation is not simply no regulation whatever. Right 4 of the Code of Rights spells out the well-established right to have health services

provided with reasonable care and skill. It goes on to establish a right to have health services provided that comply with legal, professional, ethical, and other relevant standards.

Guidelines, protocols, and the like are helpful in setting the standard for particular activities. They are of considerable importance in the context of an investigation where there has been a breach of the Code (or of similar legal requirements in other contexts). There will often be a presumption against any practice that diverges from such accepted standards. However, clause 3 of the Code provides an opportunity for clinicians or DHBs to prove that, despite their apparent deviation from the letter of these standards, they did take "reasonable actions in the circumstances" to give effect to a patient's rights under the Code.

Guidelines are best produced by those with appropriate knowledge and experience. There are a good many available. In Appendix D we list several which relate to the provision of ECT, and in Appendix E we record the suggestions of members of our Reference Group concerning matters that should be considered for inclusion in any future guidelines for ECT.

12.8 *Are New Zealand's regulatory controls on the use of ECT adequate?*

The Review Team was asked to provide an answer to this question. Although we have no reason to believe that abuses are occurring, we do not consider the current regulatory controls to be adequate.

12.9 *Should implementation of the above recommendations await the enactment of new legislation?*

Appropriate amendment of the NZMH Act could help ensure the adequacy of the regulatory control of ECT in New Zealand. However, the details of what such legislation should include goes far beyond the scope of this review - though we hope that it will be of some assistance to those who have the task of drafting such legislation.

The drafting of adequate legislation will not be a simple task, and even after a Bill has been drafted, and introduced into Parliament, speedy enactment is unlikely. The Bill would almost certainly be referred to the Health Select Committee, and a great number of submissions would require consideration. The debate would begin all over again.

We therefore take this opportunity of stressing that much could be achieved by supplementing, or amending, the MOH's Guidelines to the current NZMH Act, and by consultation with the New Zealand branch of the RANZCP and other bodies.

For example, section 60(b) of the NZMH Act refers to a patient's "interests", and these are not exclusively medical. As we have already pointed out, they should be assessed in the light of the patient's own values, needs, and priorities. Guidelines to the NZMH Act could spell this out, and indicate that ECT should not be administered to (for example) a competent patient who objects to its provision.

R

We recommend that the longer-term option of legislation should not serve as a reason for delaying the implementation of many of our recommendations.

13 ABBREVIATIONS

AG	Ms Anisha Grover
AD(s)	Advanced directive(s)
CA	Professor Craig Anderson
CINAHL	Cumulative index to nursing and allied health literature
Code	Code of Health and Disability Services Consumers' Rights 1996
Code of Rights	Code of Health and Disability Services Consumers' Rights 1996
DHB	District Health Board
ECT	Electroconvulsive therapy
EEG	Electroencephalogram
EMBASE	Excerpta Medica database
JS	Ms Jeanne Snelling
LILACS	Latin American and Caribbean literature on the health sciences
MH	Ms Maree Hackett
MOH	New Zealand Ministry of Health
NICE	The National Institute for Clinical Excellence
NNT	Number needed to treat
NSW	New South Wales
NZGG	New Zealand Guidelines Group
NZMH Act	New Zealand's Mental Health (Compulsory Assessment and Treatment) Act 1992
PS	Professor Peter Skegg
Qld	Queensland, Australia
RANZCP	The Royal Australian and New Zealand College of Psychiatrists
RCT	Randomised controlled trial
RW	Ms Ranui Wilson
SIGN	Scottish Intercollegiate Guidelines Network
UK	United Kingdom
WA	Western Australia

14 GLOSSARY

Advance directive	A directive by which a competent individual (i) makes a choice about a possible future health care procedure; and (ii) which is intended to be effective only when he or she is not competent.
Affective	Emotional or mood state.
Autonomic nervous system	Component of the nervous system involved primarily with control of heart rate and blood pressure.
Adverse effect	An unwanted side effect of treatment.
Anterograde memory	Learning new memories.
Antipsychotic	Type of medication used to treat psychotic illness or to prevent it from recurring.
Aspiration pneumonia	Infection within the lung following the entry of secretions, food or other materials into the lungs.
Asystole	Cardiac arrest due to cessation of heart muscle contraction.
Bias	A type of error in a study that results in an incorrect estimate of the association between an exposure and risk.
Bradycardia	Slowing of the heart rate.
Cardiovascular	The heart, blood vessels and circulation of blood around the body.
Case-control study	Series of people with a condition under study compared with a series of otherwise well people.
Case report	A report to a medical journal describing some aspect of a person's medical condition or treatment.
Case series	A study of a group of patients who have in common a medical condition to describe their outcomes.
Central nervous system	The brain and spinal cord.
Cognitive impairment	Disturbance of one or more aspects of memory, thinking, language and reasoning.
Code or Code of Rights	Code of Health and Disability Services Consumer Rights made in 1996, in exercise of powers conferred by the Health and Disability Commissioner Act 1994.
Cohort study	A group of people who have been followed up over time to determine the causes and/or outcomes of an illness or condition.
Competent patient	A patient who has the understanding and decision making capacity required by law for a decision of that importance.
Compulsion	Constraint of a patient for the assessment and treatment of illness with symptoms and/or behaviour that is considered to be disturbing or at risk to the patient or to others.
Concealment of allocation	When people providing treatment to subjects enrolled in a randomised controlled trial are not involved in the allocation of subjects to one or other treatment group, and are not aware which of the subjects are in which group.

Confounding	Factors in the patient, their environment, or associated health management that may interact with the treatments under investigation to affect an outcome.
Consumer group	Group of people who are, or have been, recipients of mental health treatment (or care) services.
Coronary artery disease	Atherosclerosis, hardening of the blood vessels in the heart.
Cricoid pressure	Pressure applied by the hand to the front of the neck on a section of bone in the larynx (voice box) to prevent inhalation of secretions into the airways of the lungs.
Cultural assessment	The process through which the relevance of culture to mental health is ascertained.
Dementia	A disease or condition, the most common being Alzheimer's disease, manifest by disturbed thinking, and behaviour severe enough to impair social skills and self-care abilities.
Depolarisation	Discharge of neurotransmitter chemicals in the brain.
Efficacy	A beneficial effect of a treatment.
Emotionality	Rapid changing of mood and emotions, most commonly manifest by easy crying.
Endotracheal intubation	Passage of a tube down the airway to assist in breathing.
External validity	Generalisability.
Haemorrhage	Bleeding.
Heterogeneity	Variability in characteristics or other measures.
Hypertension	A condition of sustained high blood pressure that may place a person at risk of cardiovascular disease.
Ictus	Refers to time of onset of sudden disturbances of brain function such as a stroke or seizure.
Jurisdictions	Areas for administration of justice or law.
Legislature	The body empowered with making laws.
Medication-resistant	A patient in whom a particular medication does not work or produce the desired beneficial effect.
Meta-analysis	A statistical technique for combining common research studies, often with a graphical presentation of the data.
Modified ECT	ECT provided with a short-acting anaesthetic and muscle relaxant.
Morbidity	Disability and ill health as a consequence of illness.
Motor functioning	Movement of the trunk and limbs associated with walking, mobility, dexterity and other tasks.
Neologism	A new word or expression.
Neuroleptic malignant syndrome	A rare illness characterised by altered consciousness, muscle stiffness, and fever, that may be an adverse effect of certain medications and has a high risk of death without effective treatment.
Neurotransmitter pathway	Pathways in the brain and spinal cord that share common chemical messenger signals.

Number needed to treat (or harm)	Number of patients that are needed to take a treatment to produce evidence of benefit (or harm).
Parasympathetic nervous system	A particular system in the nervous system involved in control of the circulation, release of certain hormones, and of urinary and sexual function.
Phantom limb pain	An unusual pain that simulates disturbance in an arm or leg that is no longer present after amputation.
Pharmacotherapy	Treatment with medication or drugs.
Post-partum	Following childbirth.
Postural hypotension	Significant fall in blood pressure in the upright position.
Psychosurgery	Highly specialised surgery to a section of brain to control mental illness with serious disturbance of behaviour.
Randomisation	Chance allocation, like tossing a coin.
Randomised controlled trial	A trial which tests the effects of a treatment in two (or more) groups of subjects, with the treatment being randomly allocated to each of the groups.
Respiration	Breathing.
Retrograde memory	Retrieving previous (old) memories.
Sample size	Required number of subjects in a study to detect an effect of treatment.
Seizure	Convulsion or fit.
Seizure threshold	The electrical charge necessary to induce a seizure in a person.
Sine-wave current	An oscillating wave form of electricity.
Sinusoidal wave	An oscillating wave.
Status epilepticus	Repeated or continuous fits.
Systematic review	A review of a clearly formulated question that uses systematic and explicit methods to identify, select and critically appraise all published and unpublished research.
Unmodified ECT	ECT without anaesthesia or muscle relaxant.

15 APPENDICES

Appendix A: ECT Review Committees

Appendix B: Search Strategies

Appendix C: List of written submitters who responded to our request for submissions and comments on the draft of the Review

Appendix D: List of useful documents regarding use of ECT

Appendix E: Areas suggested by members of the Reference Group for consideration for inclusion in ECT Guidelines

Appendix F: Australian and New Zealand College of Anaesthetists Recommendations for Safe Anaesthesia Practice Outside Operation Suites

Appendix G: Selected list of key references for the Review

Appendix A: ECT Review Committees

Review Group Members

Professor Craig Anderson
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Acknowledgement

The Review Group wish to thank Kathy Bos of the Clinical Trials Research Unit, The University of Auckland, for providing administrative support to their work.

Appendix B: Search Strategies

We repeated the search strategy used by the UK ECT group (*Efficacy and safety of electroconvulsive therapy in depressive disorders: a systematic review and meta-analysis. Lancet. 2003;361(9360):799-808*), looking for references published since 01 January 2000 (the date the UK Group last completed each search). All searches were further limited to 'human' and years 2000-2004. No new references were found.

The original UK search strategy dates can be found at:
<http://image.thelancet.com/extras/02art8375webappendix.pdf>

Biological Abstracts

<http://www.silverplatter.com/catalog/bacd.htm> (accessed Jun 01, 2004)

Publisher/producer: Biological Abstracts (BIOSIS)

Literature: life sciences, biology, environment

Years covered: 1980–present

Years searched: 2000-Jun 2004

Number of journals indexed: 5000 +

Number of records: 4 700 000 +

#1	1685	ect
#2	2528	electroconvulsive\$
#3	1653	electroshock\$
#4	1547	electroshock
#5	438	convulsive-therapy
#6	4841	#1 or #2 or #3 or #4 or #5
#7	84363	depression\$
#8	18545	depressive\$
#9	6179	affective-disorder\$
#10	561	affective-psycho\$
#11	7456	psychosis\$
#12	3942	personality-disorder\$
#13	40146	schizo\$
#14	232	delusional-disorder\$
#15	15457	bipolar\$
#16	17732	dementia\$
#17	5217	manic\$
#18	2409	mania\$
#19	162758	#7 or #8 or #9 or #10 or #11 or #12 or #13 or #14 or #15 or #16 or #17 or #18
#20	1464	#6 and #19
#21	233397	random\$
#22	44309	cohort
#23	20186	case-control
#24	46940	double-blind
#25	3757	single-blind
#26	188491	incidence
#27	166934	mortality
#28	176994	follow-up
#29	1831752	study
#30	107981	prognos\$
#31	319606	predict\$
#32	176865	course
#33	2578538	#21 or #22 or #23 or #24 or #25 or #26 or #27 or #28 or #29 or #30 or #31 or #32
#34	797	#20 and #33
#35	3020040	human
#36	656	#34 and #35
#37	28640	brain and (injury or damage)
#38	39202	h\$emorrhage\$
#39	66635	#37 or #38
#40	8	#36 and #39
#41	80152	explode "Behavioral-And-Mental-Disorders"
#42	62683	attention
#43	43415	orientation
#44	51955	learn\$
#45	48576	memory
#46	629490	concentration
#47	47093	cognit\$
#48	350	mental process\$
#49	749004	(#41 and #42 and #43) or #44 or #45 or #46 or #47 or #48
#50	140	#36 and #49
#51	24376	fatal
#52	152795	death
#53	168848	mortal\$
#54	73157	side?effect
#55	380178	#51 or #52 or #53 or #54
#56	101	#36 and #55
#57	214	#40 or #50 or #56
#58	47	limit 57 to (human and yr=2000 – 2004)

CINAHL (cumulative index to nursing and allied health literature)

<http://www.silverplatter.com/catalog/nurs.htm> (accessed 01 Jun, 2004)

Publisher/producer: CINAHL Information Systems

Literature: nursing, allied health, biomedicine, healthcare

Years covered: 1982–present

Years searched: 2000-Jun 2004

Number of journals indexed: 1200 +

Number of records: 250 000 +

#1	279	"Electroconvulsive-Therapy"/ all topical subheadings / all age subheadings
#2	122	ect
#3	16	convulsive and therapy
#4	304	#1 or #2 or #3
#5	4541	explode "Brain-Injuries"/ all topical subheadings / all age subheadings
#6	1027	explode "Cerebral-Hemorrhage"/ all topical subheadings / all age subheadings
#7	5484	#5 or #6
#8	2	#7 and #4
#9	38794	explode "Mental-Processes"/ all topical subheadings / all age subheadings
#10	285	"Neuropsychology"/ all topical subheadings / all age subheadings
#11	32787	explode "Psychophysiology"/ all topical subheadings / all age subheadings
#12	67320	#9 or #10 or #11
#13	19	#4 and #12
#14	13019	explode "Death"/ all topical subheadings / all age subheadings
#15	81	"Medication-Side-Effects-(Saba-HHCC)"/ all topical subheadings / all age subheadings
#16	13099	#14 or #15
#17	14304	death
#18	13036	mortality
#19	1766	fatal
#20	4432	side effect\$
#21	37713	#14 or #15 or #16 or #17 or #18 or #19 or #20
#22	38	#4 and #21
#23	25795	explode "Clinical-Trials"/ all topical subheadings / all age subheadings
#24	53146	explode "Nonexperimental-Studies"/ all topical subheadings / all age subheadings
#25	13293	incidence
#26	13036	mortality
#27	158	follow-up-studies
#28	5080	prognos\$
#29	23166	predict\$
#30	10652	course
#31	33287	random\$
#32	54202	control\$
#33	6396	cohort
#34	157257	#23 or #24 or #25 or #26 or #27 or #28 or #29 or #30 or #31 or #32 or #33
#35	85	#34 and #4
#36	100	#35 or #22 or #13 or #8
#37	46	limit 56 to (human and yr=2000 – 2004)

EMBase (Excerpta Medica database)

<http://www.embase.com> (accessed 01 Jun, 2004)

Publisher/producer: Elsevier Science Publishers

Literature: biomedical and pharmacological

Years covered: 1974–present

Years searched: 2000-Jun 2004

Number of journals indexed: about 4000

Number of countries journals published in: 70

Number of records: about 8 million

1980–December, 2000

Modified to correct an unnecessary duplication of search terms in Lancet pdf

#1	42806	explode "schizophrenia"/ all subheadings
#2	69813	explode "psychosis"/ all subheadings
#3	54112	schizo\$
#4	42806	explode "schizophrenia"/ all subheadings
#5	1739	explode "negative-syndrome"/ all subheadings
#6	648	explode "paranoid-schizophrenia"/ all subheadings
#7	1775	explode "schizoidism"/ all subheadings
#8	823	explode "schizoaffective-psychosis"/ all subheadings
#9	14696	explode "personality-disorder"/ all subheadings
#10	1775	explode "schizoidism"/ all subheadings
#11	90044	#1 or #2 or #3 or #4 or #5 or #6 or #7 or #8 or #9 or #10
#12	1052	"bipolar-depression"/ all subheadings
#13	7232	"manic-depressive-psychosis"/ all subheadings
#14	4876	"mania"/ all subheadings
#15	12016	#12 or #13 or #14
#16	10014	manic\$
#17	6054	mania\$
#18	16851	bipolar
#19	25366	#15 or #16 or #17 or #18
#20	128248	"depression"/ all subheadings
#21	1311	"bipolar-depression"/ all subheadings
#22	50	"involutional-depression"/ all subheadings
#23	128762	#20 or #21 or #22
#24	215309	#23 or #19 or #112
#25	5690	"electroconvulsive-therapy"/ all subheadings
#26	2997	"electric-shock"/ all subheadings

#27	204	"convulsive-therapy"/ all subheadings
#28	8694	#25 or #26 or #27
#29	3199	ect
#30	9281	#28 or #29
#31	4079	#24 and #30
#32	87295	explode "randomized-controlled-trial"/ all subheadings
#33	21555	explode "cohort-analysis"/ all subheadings
#34	10197	explode "case-control-study"/ all subheadings
#35	52704	explode "double-blind-procedure"/ all subheadings
#36	4872	explode "single-blind-procedure"/ all subheadings
#37	138225	#32 or #33 or #34 or #35 or #36
#38	235218	Incidence-
#39	139011	explode "mortality"/ all subheadings
#40	4432	Follow-Up-Studies
#41	196957	mortality
#42	180054	prognos\$
#43	331396	predict\$
#44	189477	course
#45	995271	#38 or #39 or #40 or #41 or #42 or #43 or #44
#46	599983	explode "drug-therapy"/ all subheadings
#47	281550	random\$
#48	837227	#46 or #47
#49	1615	(#37 or #45 or #48) and #31
#50	38531	explode "brain-injury"/all subheadings
#51	3542	brain and (injury or damage)
#52	58977	#50 or #51
#53	20	#52 and #49
#54	6894	explode "neuropsychology"/ all subheadings
#55	2830	explode "neuropsychiatry"/ all subheadings
#56	8148	explode "orientation"/ all subheadings
#57	300454	explode "cognition"/ all subheadings
#58	25309	explode "attention"/ all subheadings
#59	569811	explode "mental-function"/ all subheadings
#60	574000	#54 or #55 or #56 or #57 or #58 or #59
#61	416	#49 and #60
#62	136172	explode "adverse-drug-reaction"/ all subheadings
#63	2689	explode "drug-fatality"/ all subheadings
#64	139011	explode "mortality"/ all subheadings
#65	18039	explode "cause-of-death"/ all subheadings
#66	115628	explode "death"/ all subheadings
#67	8840	explode "side-effect"/ all subheadings
#68	23109	explode "brain-hemorrhage"/ all subheadings
#69	423568	#62 or #63 or #64 or #65 or #66 or #67 or #68
#70	3662739	mortality or death or fatal
#71	609567	#69 or #70
#72	380	#49 and #71
#73	682	#72 or #61 or #53
#74	4871476	human
#75	632	#74 and #73
#76	251	limit 75 to (human and yr=2000 – 2004)

LILACS (Latin American and Caribbean literature on the health sciences)

<http://www.bireme.br/bvs/l/ibd.htm> (accessed 01 Jun, 2004)

Publisher/producer: BIREME

Literature: Latin American and Caribbean regional scientific literature

Years covered: 1982-present

Years searched: 2000-Jun 2004

Number of journals indexed: 670 +

Number of records: 150 000 +

#1 19 eletroconvulsivante or electroconvulsoterapia or electroconvulsive or ECT

MEDLINE

<http://www.nlm.nih.gov/hinfo.html> (accessed 01 Jun, 2004)

Publisher/producer: US National Library of Medicine

Literature: biomedical

Years covered: 1966–present

Years searched: 2000-Jun 2004

Number of journals indexed: about 4000

Number of records: about 10 million records

#1	6020	"Electroconvulsive-Therapy"/ all subheadings
#2	9298	"Electroshock"/ all subheadings
#3	317	"Convulsive-Therapy"/ all subheadings
#4	3490	ect
#5	16299	#1 or #2 or #3 or #4
#6	62906	explode "Mood-Disorders"/ all subheadings
#7	50236	explode "Schizophrenia"/ all subheadings
#8	34827	"Depression"/ all subheadings
#9	20381	explode "Personality-Disorders"/ all subheadings
#10	87979	explode "Delirium-Dementia,-Amnestic,-Cognitive-Disorders"/ all subheadings
#11	17660	explode "Bipolar-Disorder"/ all subheadings
#12	227714	#6 or #7 or #8 or #9 or #10 or #11
#13	4620	#5 and #12
#14	33956	explode "Randomized-Controlled-Trials"/ all subheadings

#15	503036	explode "Cohort-Studies"/ all subheadings
#16	262284	explode "Case-Control-Studies"/ all subheadings
#17	79384	explode "Double-Blind-Method"/ all subheadings
#18	8364	explode "Single-Blind-Method"/ all subheadings
#19	810519	#14 or #15 or #16 or #17 or #18
#20	574	#13 and #19
#21	306532	"Incidence-"
#22	160982	explode "Mortality"/all subheadings
#23	291035	"Follow-Up-Studies"
#24	208779	mortality in mesh
#25	291672	prognos\$
#26	382129	predict\$
#27	245703	course
#28	1505100	#21 or #22 or #23 or #24 or #25 or #26 or #27
#29	1005	#28 and #13
#30	7547	randomized controlled trial in pt
#31	31952	drug therapy in mesh
#32	253812	therapeutic use in mesh
#33	336413	random\$
#34	602250	#30 or #31 or #32 or #33
#35	539	#34 and #13
#36	1486	#20 or #29 or #35
#37	26091	explode "Brain-Injuries"/all subheadings
#38	41050	brain and (injury or damage)
#39	57319	#37 or #38
#40	16	#39 and #36
#41	30010	"Attention"/all subheadings
#42	369663	explode "Mental-Processes"/all subheadings
#43	376202	#41 or #42
#44	133	#43 and #36
#45	160982	explode "mortality"/all subheadings
#46	22856	explode "Fatal-Outcome"/all subheadings
#47	19823	explode "Cause-of-Death"/all subheadings
#48	76189	explode "Death"/all subheadings
#49	208779	mortality
#50	44445	fatal
#51	221904	death
#52	540404	#45 or #46 or #47 or #48 or #49 or #50 or #51
#53	73	#52 and #36
#54	217	#40 or #44 or #53
#55	34	limit 74 to (human and yr=2000 – 2004)

PsycINFO

<http://www.apa.org/psycinfo/> (accessed 01 Jun, 2004)
 Publisher/producer: American Psychological Association
 Literature: psychological
 Years covered: 1887–present
 Years searched: 2000-Jun 2004
 Number of journals indexed: about 1646
 Number of countries journals published in: 45
 Number of records: about 1.7 million records

#1	4028	explode "Electroconvulsive-Shock"
#2	3110	explode "Electroconvulsive-Shock-Therapy"
#3	3182	explode "Shock-Therapy"
#4	4100	#1 or #2 or #3
#5	10772	explode "Personality-Disorders"
#6	56207	explode "Affective-Disorders"
#7	41051	explode "Schizophrenia"
#8	101495	#5 or #6 or #7
#9	1684	#4 and #8
#10	50881	random\$
#11	7535	cohort
#12	1311	case-control
#13	17716	blind
#14	19494	incidence
#15	9317	explode "Death-and-Dying"
#16	7178	mortality
#17	46127	follow-up
#18	10402	prognos\$
#19	139861	predict\$
#20	51893	course
#21	317362	#10 or #11 or #12 or #13 or #14 or #15 or #16 or #17 or #18 or #19 or #20
#22	612	#9 and #21
#23	3552	"Traumatic-Brain-Injury" in DE
#24	340	"Cerebral-Hemorrhage" in DE
#25	12889	brain and (injury or damage)
#26	13394	#23 or #24 or #25
#27	9	#22 and #26
#28	8652	explode "Neuropsychology"
#29	1178	explode "Neuropsychiatry"
#30	5664	explode "Perceptual-Orientation"
#31	4683	explode "Spatial-Orientation-Perception"
#32	146309	explode "Cognitive-Processes"
#33	32246	explode "Consciousness-States"
#34	185841	#28 or #29 or #30 or #31 or #32 or #33
#35	19	#22 and #34

#36	25284	explode "Side-Effects-Drug"
#37	9317	explode "Death-and-Dying"
#38	26259	explode "Side-Effects-Treatment"
#39	7178	mortality
#40	24824	death
#41	1705	fatal
#42	59296	#36 or #37 or #38 or #39 or #40 or #41
#43	112	#22 and #42
#44	135	#43 or #35 or #27
#45	27	limit 44 to (human and yr=2000 – 2004)

SIGLE (system for information on grey literature in Europe)

<http://www.silverplatter.com/catalog/sigl.htm> (accessed 01 Jun, 2004)

This database was not searched

Summary

424 articles were identified that consisted:

22 RCTs, however none using sham ECT in the control group

23 review articles on ECT

5 case/control studies

2 cohort studies

10 retrospective studies of ECT

8 open ECT trials

42 case reports or case series on ECT

20 articles on other aspects of ECT

The remaining articles were duplicates, or unrelated to ECT.

A complete list of these references is available upon request from the Chair of the Review Group.

Appendix C: List of written submitters who responded to our request for submissions and comments on the draft of the Review

Mr Steve Chadwick MP	Chairperson, Health Committee, NZ Parliament.
Dr Peter Cooke	Chair, NZ National Committee, Australian and New Zealand College of Anaesthetists.
Ms Anna de Jonge	Patients Rights Advocacy, Waikato Inc.
Mr Nigel Dunlop	Convenor, Mental Health Review Tribunal.
Dr Allen Fraser	Chair, New Zealand National Committee, The Royal Australian and New Zealand College of Psychiatrists.
Dr David Kitching	Acting Chair, Committee for Psychotropic Drugs and Other Physical Treatments, of the Royal Australian and New Zealand College of Psychiatrists.
Professor Bob Knight	Department of Psychology, University of Otago, Dunedin.
Mr Hugh Norris	General Manager, Wellink Trust.
Ms Mary O'Hagan	Commissioner, Mental Health Commission.
Mr Ron Paterson	Health and Disability Commissioner.
Dr Murray Patton	Clinical Director, Mental Health Service, Capital and Coast District Health Board.
Dr Gavin Pilkington	Department of Psychiatry, Waitemata DHB.
Dr Richard Porter	Department of Medicine, Christchurch School of Medicine.
Fuimaono Karl Pulotu-Endemann	Alo-o-Tuatagaloa, Wellington.
Dr John Read	Department of Psychology, University of Auckland.
Dr Stewart Roberts	Nelson Marlborough DHB.
Professor John Tiller	Department of Psychiatry, University of Melbourne.
The Human Rights Commission	

Appendix D: List of useful documents regarding use of ECT

PROFESSIONAL GUIDELINES

Royal Australian and New Zealand College of Psychiatrists, Clinical Memorandum # 12, Electroconvulsive therapy: Guidelines on the administration of electroconvulsive therapy (ECT) 1999 (GC1/99, R40)

Royal Australian and New Zealand College of Psychiatrists, New Public Information Sheet - Electroconvulsive Therapy Explained, 1999

Royal Australian and New Zealand College of Psychiatrists, Training and Assessment Regulations, October 2002

The Australian and New Zealand College of Anaesthetists, Professional Documents, PS7 (2003), PS4 (2000), PS18 (2000), T1 (2000), T2 (2000)

NATIONAL STANDARDS

Technical standard for ECT equipment, (NZS/AS3200.2.14-92)

BRITISH PROFESSIONAL GUIDELINES

Royal College of Psychiatrists, ECT Handbook, 1995 (under revision)

Royal College of Psychiatrists, The Royal College of Psychiatrists Patient Fact sheet on ECT, 1993 (under revision)

Appendix E: Areas suggested by members of the Reference Group for consideration for inclusion in ECT Guidelines

1. Service user groups
2. Consent process
 - a. Patients
 - b. Information
 - c. Family
 - d. Culture
 - e. History
 - f. Advance directives
 - g. Response to treatment
 - h. Adverse effects
 - i. Human rights
 - i. Dignity
 - ii. Participation
 - iii. Empowerment
 - iv. Non-discrimination/equal outcomes
 - j. Health and disability standards
3. ECT procedures
 - a. Staff
 - b. Qualifications
 - c. Credentialing
 - d. Audit
 - i. Disaggregate data
4. Health service requirements
 - a. Accessibility
 - b. Equipment
 - c. Space
5. Mental health standards of care
6. Health Practitioners Competency Assessment Act 2003
7. Recovery competencies
8. Provision of emergency ECT

AUSTRALIAN AND NEW ZEALAND COLLEGE OF ANAESTHETISTS

ABN 82 055 042 852

RECOMMENDATIONS ON MINIMUM FACILITIES FOR SAFE ANAESTHESIA PRACTICE OUTSIDE OPERATING SUITES

The provision of safe anaesthesia requires appropriate staff, facilities and equipment. These are specified in this Document which amalgamates previously published documents T3, T5, T6 and PS33.

1. PRINCIPLES OF ANAESTHESIA CARE

1.1 Anaesthesia should be administered only by medical practitioners with appropriate training in anaesthesia or by trainees supervised according to College Professional Documents TE3 *Policy on Supervision of Clinical Experience for Trainees in Anaesthesia*, PS1 *Recommendations on Essential Training for Rural General Practitioners in Australia Proposing to Administer Anaesthesia*, and PS2 *Recommendations on Privileges in Anaesthesia*.

1.2 Every patient presenting for anaesthesia should have a pre-anaesthesia consultation by a medical practitioner who has appropriate training in anaesthesia. See College Professional Document PS7 *Recommendations on the Pre-anaesthesia Consultation*.

1.3 Appropriate monitoring of physiological and other variables must occur during anaesthesia. See College Professional Document PS18 *Recommendations on Monitoring During Anaesthesia*.

2. STAFFING

2.1 In addition to the nursing staff required by those carrying out the procedure, there must be:

2.1.1 An assistant for the anaesthetist. See College Professional Document PS8 *Recommendations on the Assistant for the Anaesthetist*.

2.1.2 Adequate assistance in positioning the patient.

2.1.3 Adequate technical assistance to ensure proper functioning and servicing of all equipment used.

3. AREAS IN WHICH ANAESTHESIA IS ADMINISTERED

3.1 *Anaesthesia Equipment*

- 3.1.1 Essential requirements are listed below. Where a range of equipment is recommended, the facility is expected to provide the type most suitable for its needs.
- 3.1.2 Each facility must designate:
 - 3.1.2.1 One (or more) specialist anaesthetists to advise on the choice and maintenance of anaesthesia equipment.
 - 3.1.2.2 One (or more) of its nursing or technical staff to be responsible for the organisation of cleaning, maintenance and servicing of anaesthesia equipment.
- 3.1.3 There must be an anaesthesia delivery system for each anaesthetising location which is capable of delivering oxygen and medical air (where this is clinically indicated) as well as other anaesthetic agents which are in common use. Essential equipment includes:
 - 3.1.3.1 Calibrated vaporisers or other systems designed for the accurate delivery of inhalational anaesthetic agents when required.
 - 3.1.3.2 A range of suitable breathing systems with appropriate measures to ensure the sterility of breathing gases supplied to each patient. See College Professional Document PS28 *Guidelines on Infection Control in Anaesthesia*.
 - 3.1.3.3 Breathing systems suitable for paediatric use when necessary.
- 3.1.4 Safety devices which must be present in every anaesthesia delivery system include:
 - 3.1.4.1 An indexed gas connection system.
 - 3.1.4.2 A reserve supply of oxygen.
 - 3.1.4.3 An oxygen supply failure warning device. (See College Professional Document PS18 *Recommendations on Monitoring During Anaesthesia*). Where medical gas pipeline systems are in use, there must be supply failure alarms which function according to the current relevant national Standards.
 - 3.1.4.4 A breathing system high pressure relief valve.
 - 3.1.4.5 An oxygen concentration analyser with appropriate alarm limits. See College Professional Document PS18 *Recommendations on Monitoring During Anaesthesia*.
 - 3.1.4.6 An anti-hypoxic device for use whenever nitrous oxide is administered must be fitted to all anaesthesia delivery systems by January 2002.
 - 3.1.4.7 An approved non-slip connection for the common gas outlet.
- 3.1.5 A separate means of inflating the lungs with oxygen must be provided in each anaesthetising location. This apparatus should comply with the current relevant national Standards. The size of the device and its attachments must be appropriate for patients being anaesthetised at that location. Its oxygen supply must be independent of the anaesthesia delivery system.

- 3.1.6 Suction apparatus must be available for the exclusive use of the anaesthetist at all times together with appropriate hand pieces and endotracheal suction catheters. This apparatus should comply with the current relevant national Standards. Provision must be made for an alternative suction system in the event of primary suction failure.
- 3.1.7 In every anaesthetising location there must be:
- 3.1.7.1 Appropriate protection for the anaesthesia team against biological contaminants. This must include gowns, disposable gloves, masks and eye shields.
 - 3.1.7.2 A stethoscope
 - 3.1.7.3 A sphygmomanometer
 - 3.1.7.4 Monitoring equipment complying with College Professional Document PS18 *Recommendations on Monitoring During Anaesthesia*. Where volatile agents are not available, agent monitoring is not required.

The particular requirements of magnetic resonance imaging facilities can be met with appropriate equipment designed for the environment.
 - 3.1.7.5 An appropriate range of face masks.
 - 3.1.7.6 An appropriate range of oropharyngeal, nasopharyngeal, laryngeal mask and other artificial airways.
 - 3.1.7.7 Two laryngoscopes with a range of suitable blades.
 - 3.1.7.8 An appropriate range of endotracheal tubes and connectors.
 - 3.1.7.9 A range of endotracheal tube introducers and bougies.
 - 3.1.7.10 Endotracheal cuff inflating syringe and clamps.
 - 3.1.7.11 Magill's forceps and throat packs.
 - 3.1.7.12 A suitable range of adhesive and other tapes.
 - 3.1.7.13 Scissors.
 - 3.1.7.14 Sterile endotracheal lubricant.
 - 3.1.7.15 Tourniquets for use during IV insertion.
 - 3.1.7.16 Intravenous infusion equipment with an appropriate range of cannulae and solutions.
 - 3.1.7.17 Means for the safe disposal of items contaminated with biological fluids, "sharps" and waste glass.
 - 3.1.7.18 Equipment for scavenging of anaesthetic gases and vapours where these are in use with interface equipment which prevents over-pressurisation of the anaesthesia breathing circuit.

- 3.1.8 In every anaesthetising location there must be readily available:
- 3.1.8.1 Equipment for managing difficult intubations in all locations where endotracheal intubation is electively performed.
 - 3.1.8.2 Equipment for automatic ventilation of the lungs incorporating alarms as specified in College Professional Document PS18 *Recommendations on Monitoring During Anaesthesia*, when appropriate.
 - 3.1.8.3 Equipment for the rapid infusion of fluids.
 - 3.1.8.4 A cardiac defibrillator with capacity for synchronised cardioversion.
 - 3.1.8.5 Interpleural drainage sets including appropriate underwater seal drainage equipment or one way valves.
 - 3.1.8.6 When appropriate, equipment to warm and/or humidify respiratory gases during anaesthesia. A decision as to the use of active or passive devices will require consideration of the procedures being undertaken.
 - 3.1.8.7 Equipment to cool patients in the event of inappropriate increases in body temperature.
 - 3.1.8.8 Equipment required for sub-arachnoid, epidural or regional nerve blocks, when appropriate.
 - 3.1.8.9 When appropriate, having regard to the procedures being undertaken, equipment to minimise patient heat loss including insulating sheets, forced air warming devices, mattress warmers and intravenous fluid warmers.
- 3.1.9 Other requirements for safe anaesthesia include:
- 3.1.9.1 Appropriate lighting for the clinical observation of patients which complies with the current relevant national Standards.
 - 3.1.9.2 Emergency lighting and electric power complying with the current relevant national Standards.
 - 3.1.9.3 Telephone/Intercom to communicate with persons outside the anaesthetising location and including an “anaesthesia emergency” call system.
 - 3.1.9.4 Refrigeration facilities for the storage of fluids, drugs and biological products.
 - 3.1.9.5 The means to maintain room temperature in the anaesthetising location within the range of 18 - 28°C.
 - 3.1.9.6 Patient transfer trolleys/beds as specified in College Professional Document PS4 *Recommendations for the Post-Anaesthesia Recovery Room*.

- 3.1.9.7 Devices such as rollers or patient slides to assist with transfer of patients when appropriate.
- 3.1.9.8 A minimum of three people to assist with transfer of the patient when required, with the anaesthetist having prime responsibility for the patient's airway, head and neck.

3.2 *Drugs*

- 3.2.1 In addition to the drugs and agents commonly used in anaesthesia, drugs necessary for the management of the following conditions, which may complicate or co-exist with anaesthesia. Such conditions include:

- Anaphylaxis
- Cardiac arrhythmias
- Cardiac arrest
- Pulmonary oedema
- Hypotension
- Hypertension
- Bronchospasm
- Respiratory depression
- Hypoglycaemia
- Hyperglycaemia
- Adrenal dysfunction
- Raised intracranial pressure
- Uterine atony (Delivery suites only)
- Coagulopathies (Delivery suites only)

- 3.2.2 In making an appropriate selection of drugs and administration equipment for the management of these conditions, advice should be sought as in 3.1.2.1.
- 3.2.3 Appropriate mechanisms must exist for the regular replacement of all drugs and drug administration equipment after use or when their expiry date has been reached.
- 3.2.4 An initial supply of dantrolene for the treatment of malignant hyperpyrexia should be immediately accessible to all anaesthetising locations with further doses being readily available on request.

3.3 *Routines for Checking, Cleaning and Servicing Equipment*

- 3.3.1 Regular sterilising, cleaning and housekeeping routines for the care of equipment should be established.
- 3.3.2 Documented servicing of the anaesthesia delivery system and medical gas equipment by an appropriate organisation must be carried out at least twice a year. After any modification to the gas distribution system, gas analysis and flow measurement must be carried out and documented before use.
- 3.3.3 A copy of the College Professional Document PS31 *Recommendations on Protocol for Checking the Anaesthesia Machine* or a similar document should be available on each anaesthesia delivery system.

3.4 *Recovery Area*

3.4.1 Recovery from anaesthesia should take place under appropriate supervision in a designated area which conforms with College Professional Document PS4 *Recommendations for the Post-Anaesthesia Recovery Room*.

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

4 This is a generic document which is intended to be interpreted in the context of the particular service for which anaesthesia is administered. Specific issues may include:

4.1 *Delivery suites*

4.1.1 Staffing – For the establishment and management of epidural blockade in labour, the presence of a midwife trained and competent in obstetric epidural management is required. See College Professional Document PS14 – *Guidelines for the Conduct of Major Regional Analgesia in Obstetrics*.

4.1.2 Staffing – at the time of delivery there must be an appropriately trained and qualified practitioner solely available to resuscitate the neonate.

4.1.3 Analgesia equipment – any apparatus used for administration of inhalation analgesia must deliver at least 30% oxygen.

4.1.4 There must be suction apparatus for the exclusive use of the anaesthetist which is separate from that required for resuscitation of the neonate.

4.1.5 There must be separate oxygen outlets and suitable attachments for administering oxygen to the mother and to the neonate.

4.1.6 Neonatal resuscitation equipment must include a suitable range of items for:

4.1.6.1 Administration of oxygen to the neonate.

4.1.6.2 Clearing of the airway.

4.1.6.3 Intubation and ventilation of the lungs.

4.1.6.4 Administration of intravenous fluids and drugs.

4.1.6.5 Maintenance of the neonate's temperature.

4.1.6.6 An appropriate range of drugs must be available.

4.2 *ECT Locations*

Where provision of an anaesthesia delivery system is not essential, as in an ECT area, there must be:

4.2.1 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 PS28 *Guidelines on Infection Control in Anaesthesia*.

4.2.2 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.

4.3 *Dental surgeries*

- 4.3.1 There must be a dental operating chair which will allow the patient to be placed rapidly in the horizontal or head-down position.

4.4 *Organ Imaging Locations*

- 4.4.1 Monitoring equipment complying with College Professional Document PS18 *Recommendations on Monitoring During Anaesthesia*. Although special problems are encountered in MRI facilities, appropriate equipment to meet the recommendations is available.
- 4.4.2 The specific problems associated with the location of the anaesthesia delivery system, monitoring equipment and other necessary equipment (eg drug trolley and suction apparatus) in an environment where space is often limited due to the presence of imaging equipment must be prospectively considered.

RELATED DOCUMENTS

T1	<i>Recommendations on Minimum Facilities for Safe Anaesthesia Practice in Operating Suites</i>
TE3	<i>Policy on Supervision of Clinical Experience for Trainees in Anaesthesia</i>
PS1	<i>Recommendations on Essential Training for Rural General Practitioners in Australia Proposing to Administer Anaesthesia</i>
PS2	<i>Recommendations on Privileges in Anaesthesia</i>
PS4	<i>Recommendations for the Post-Anaesthesia Recovery Room</i>
PS7	<i>Recommendations on the Pre-Anaesthesia Consultation</i>
PS8	<i>Recommendations on the Assistant for the Anaesthetist</i>
PS9	<i>Guidelines on Sedation for Diagnostic and Surgical Procedures</i>
PS14	<i>Guidelines for the Conduct of Major Regional Analgesia in Obstetrics</i>
PS18	<i>Recommendations on Monitoring During Anaesthesia</i>
PS28	<i>Guidelines on Infection Control in Anaesthesia</i>
PS31	<i>Recommendations on Protocol for Checking the Anaesthetic Machine</i>

15.1.1 COLLEGE PROFESSIONAL DOCUMENTS

College Professional Documents are progressively being coded as follows:

TE	<i>Training and Educational</i>
EX	<i>Examinations</i>
PS	<i>Professional Standards</i>
T	<i>Technical</i>

POLICY – defined as ‘a course of action adopted and pursued by the College’. These are matters coming within the authority and control of the College.

RECOMMENDATIONS – defined as ‘advisable courses of action’.

GUIDELINES – defined as ‘a document offering advice’. These may be clinical (in which case they will eventually be evidence-based), or non-clinical.

STATEMENTS – defined as ‘a communication setting out information’.

This document has been prepared having regard to general circumstances, and it is the responsibility of the practitioner to have express regard to the particular circumstances of each case, and the application of this document in each case.

Professional documents are reviewed from time to time, and it is the responsibility of the practitioner to ensure that the practitioner has obtained the current version. Professional documents have been prepared having regard to the information available at the time of their preparation, and the practitioner should therefore have regard to any information, research or material which may have been published or become available subsequently.

Whilst the College endeavours to ensure that professional documents are as current as possible at the time of their preparation, it takes no responsibility for matters arising from changed circumstances or information or material which may have become available subsequently.

Promulgated:	1989
Reviewed:	1994, 1995
Date of current document:	Dec 2000

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College Website: <http://www.anzca.edu.au/>

Appendix G: Selected list of key references for the Review

Agence d'évaluation des technologies et des modes d'intervention en santé (AETMIS). The use of electroconvulsive therapy in Quebec. Report prepared by Reiner Banken. (AETMIS 02-05 RE). Montreal: AETMIS, 2002 xvii-96p.

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Mental Health Commission. Cultural Assessment Processes for Maori. Guidelines for Mainstream Mental Health Service. Mental Health Commission. September, 2001 (<http://www.mhc.govt.nz>).

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Rose D, Wykes T, Leese M, Bindman J, Fleischmann P. Patients' perspective on electroconvulsive therapy: systematic review. BMJ 2003; 326: 1-5.

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