

# **Wisconsin Public Psychiatry Network Teleconference (WPPNT)**

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# WPPNT Reminders

## How to join the Zoom webinar

- **Online:** <https://dhs.wi.zoom.us/j/82980742956>(link is external)
- **Phone:** 301-715-8592
  - Enter the Webinar ID: 829 8074 2956#.
  - Press # again to join. (There is no participant ID)

## Reminders for participants

- Join online or by phone by 11 a.m. Central and wait for the host to start the webinar. Your camera and audio/microphone are disabled.
- [Download or view the presentation materials](#). The evaluation survey opens at 11:59 a.m. the day of the presentation.
- Ask questions to the presenter(s) in the Zoom Q&A window. Each presenter will decide when to address questions. People who join by phone cannot ask questions.
- Use Zoom chat to communicate with the WPPNT coordinator or to share information related to the presentation.
- Participate live or view the recording to earn continuing education hours (CEHs). Complete the evaluation survey within two weeks of the live presentation and confirmation of your CEH will be returned by email.
- A link to the video recording of the presentation is posted within four business days of the presentation.
- Presentation materials, evaluations, and video recordings are on the WPPNT webpage: <https://www.dhs.wisconsin.gov/wppnt/2021.htm>.

# ELECTROCONVULSIVE THERAPY (ECT): YES, WE REALLY STILL DO THAT!

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# OUTLINE

- A Brief History of Convulsive Therapy
- Current Perceptions of ECT
- Current Practice of ECT
  - ECT Procedure
  - Complications and Risks
- Patient scenarios

# A BRIEF HISTORY OF CONVULSIVE THERAPY

# WHAT IS ECT?

- **Electroconvulsive Therapy:**
  - Controlled use of electrical pulses to cause a seizure (“convulsion”)
  - Done under general anesthesia with a paralytic drug
  - Closely monitored hospital setting, anesthesia and psychiatry doctors present throughout.
  - Usually a series of treatments, 2-3 times per week for 10-12 treatments.

# WHY WAS ECT DEVELOPED?

- Early observations of improved behavior/symptoms after epileptic seizures
  - Attributed to various historical sources back to ancient Greece
- Attempts to develop methods to cause seizures externally to achieve (possible) beneficial effects.
  - Inconsistent results
  - Some methods were very risky

# CHEMICALLY INDUCED SEIZURES

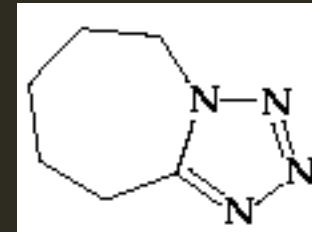
- 16<sup>th</sup> century – In Switzerland, Paracelsus reports use of camphor induced convulsions to treat disease.
- 1785 – In England, Oliver reports treatment of mania by camphor induced convulsions.





# CONVULSIVE THERAPIES

- 1934 – Ladislav Von Meduna
- Autopsies of patients with seizure disorders or schizophrenia. Observed differences in glial cell proliferation.
- Induces seizures using camphor initially and later, IV Metrazol (pentylentetrazole)
- Based on his theory that seizures would reduce symptoms of schizophrenia



# INSULIN SHOCK THERAPY

- 1935 – Dr. Manfred Sakel developed Insulin Shock Therapy
- Hypoglycemia often (but not always) produced seizures.
- Used to treat opiate dependence; later schizophrenia



# ELECTROCONVULSIVE THERAPY

- Cerletti and Bini experiments with animals (1935-1938)
- First application to a patient in 1938: Homeless man with catatonic schizophrenia.
- Patient reportedly had a good response: started talking, sustained benefit.

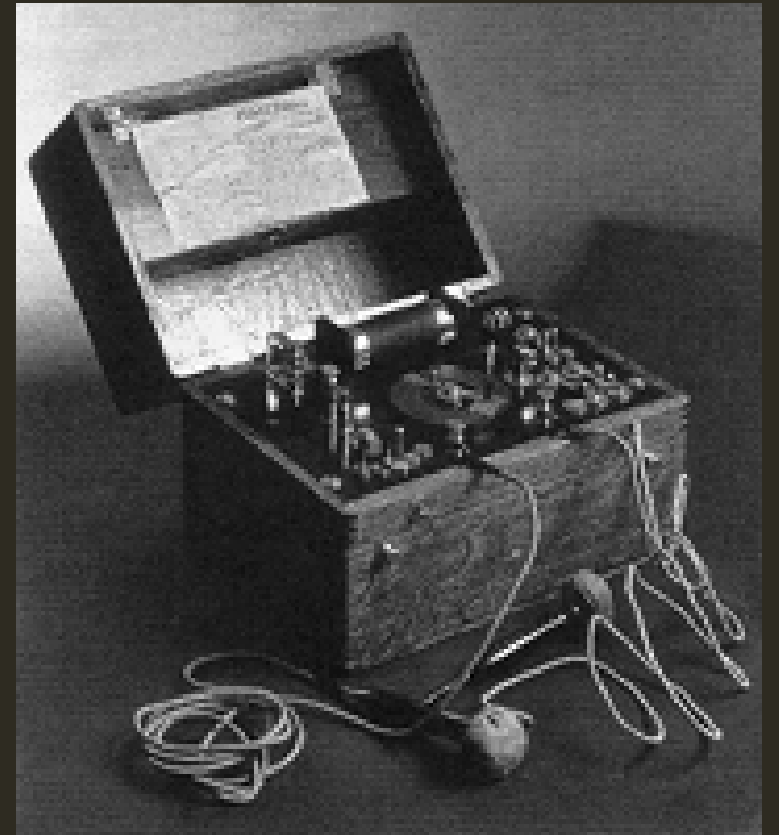
# EVOLUTION OF ECT

- 1940 – ECT introduced in the US and became widely used.
- All initial convulsive therapies were done without anesthesia or paralysis
- 1940 - A.E. Bennett uses curare for muscle relaxation with Metrazol convulsive therapy
- 1952 – Holmberg uses succinylcholine as a muscle relaxant with ECT



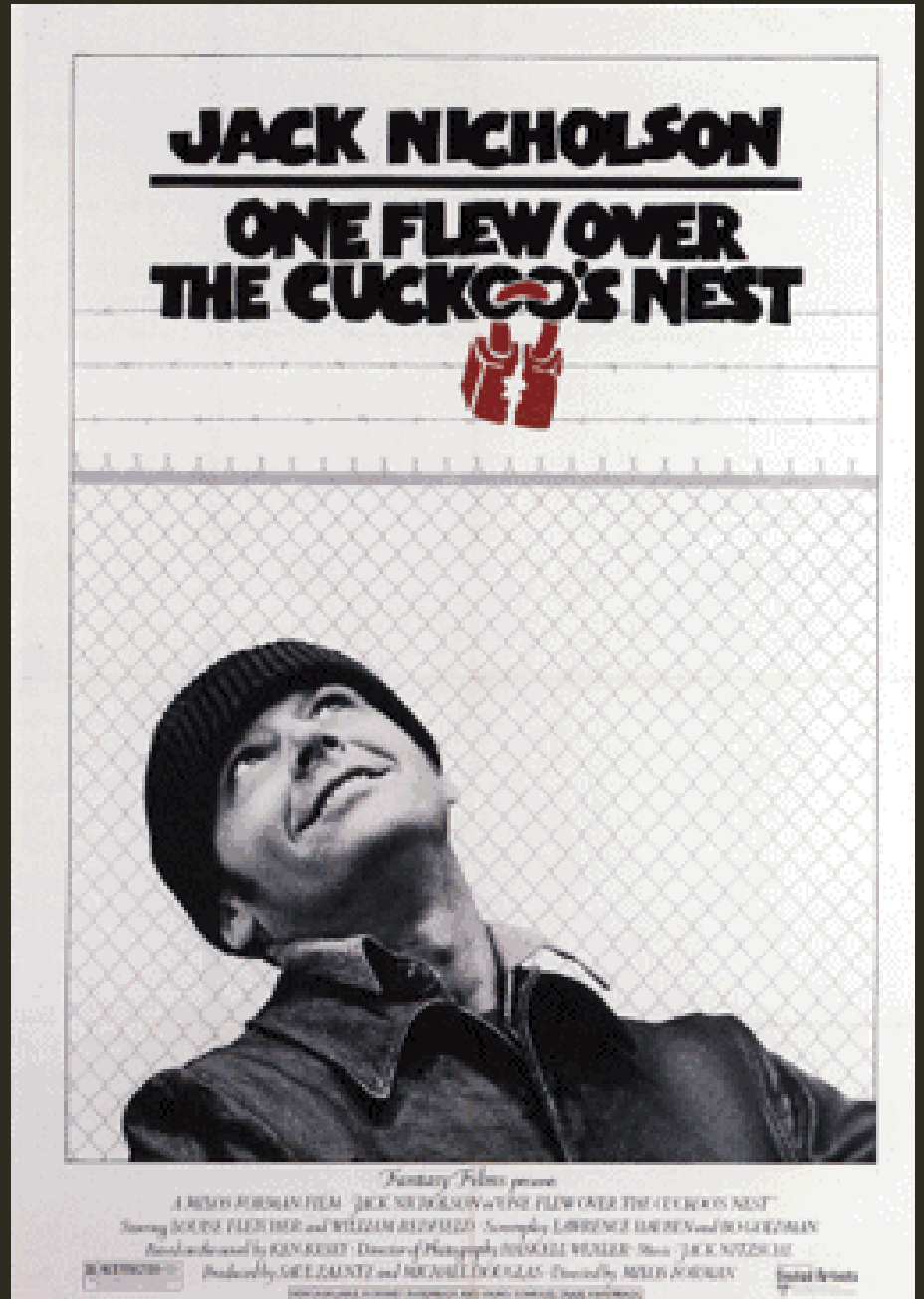
# WHY DID ECT SPREAD SO QUICKLY?

- Many asylums, institutions housing chronically ill (psychiatric, neurologic, developmental)
- Few medications or other effective treatments
- Introduction of curare, anesthesia made ECT more practical and humane



# WHY DID ECT USE DECLINE SO QUICKLY?

- In the 1950's – explosion of psychopharmacology and associated rapid decline of ECT use.
- Media
- Social and political forces
- Other?



CURRENT PERCEPTIONS OF ECT

FOR IMMEDIATE RELEASE

## End the Use of ECT Now Demand Irate CCHR Protestors

SAN FRANCISCO, CALIFORNIA • MAY 29, 2019

*ECT is torture, claims the mental health watchdog Citizens Commission on Human Rights (CCHR) and psychiatry is inflicting this on 100,000 Americans each year, including veterans, the elderly, pregnant women and children five years old and younger.*

Hundreds marched through the streets of San Francisco on Saturday, May 18, to let the American Psychiatric Association (APA), gathered at the Moscone convention center for their annual meeting, to demand the end of **electroshock**. The barbaric practice passes up to 460 volts of electricity through the brain, causing a grand mal seizure that can result in permanent memory loss and brain damage. "Electroshock is torture, not therapy" read the placards they carried.





# WHY IS SCIENTOLOGY OPPOSED TO PSYCHIATRIC ABUSES?

“... Nor do Scientologists believe people should be stigmatized with labels and “treated” with “cures” that have no basis in science and are brutal in the extreme. Through its long and tragic history psychiatry has invented numerous “cures” which eventually proved destructive in the extreme. In the eighteenth and nineteenth centuries, mentally troubled patients were literally subjected to torture devices. Next it was ice baths and insulin shock. Then electroconvulsive therapy that caused broken teeth and bones as well as loss of memory and regression into comatose states. Next, it was prefrontal lobotomies with an ice pick through the eye socket. Today it is drugs.”

# SCIENTOLOGY VS. PSYCHIATRY: A CASE STUDY

## THE ATLANTIC, JULY 2012



<https://www.theatlantic.com/health/archive/2012/07/scientology-vs-psychiatry-a-case-study/259279/>

# ECT IS:

- Barbaric?
- Inhumane?
- Abusive?
- Painful?
- Outdated?
- Unsafe?
- Ineffective?
- Should be illegal?

# MEDIA PORTRAYALS OF ECT:

- Used as a punishment
- Done to people **against their will**
- Done while people are aware
- Is painful
- Long high voltage application
- Leaves people as “zombies” or otherwise severely impaired

NEUROSCIENCE

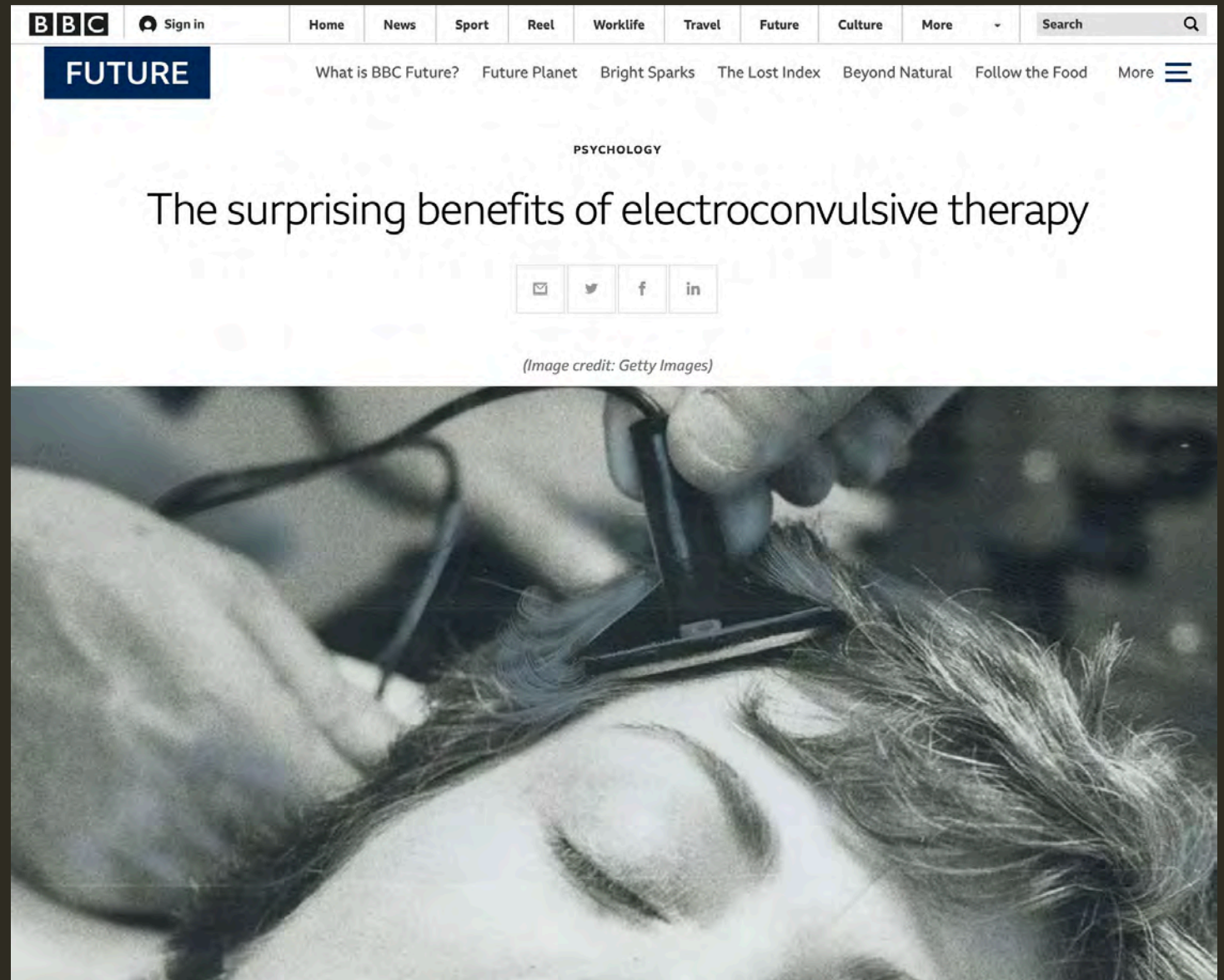
# Beyond the *Cuckoo's Nest*: The Quest for Why Shock Therapy Can Work

Nearly 90 years old, electroconvulsive therapy can rescue some people, but not others, from depression, bipolar and other mental disorders

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By R. Douglas Fields on November 27, 2017

Electroconvulsive therapy helps patients with their symptoms in more than 80% of cases – but its stigma means it may not be helping the people it could.



<https://www.bbc.com/future/article/20180502-the-surprising-benefits-of-electroshock-therapy-or-ect>



NEUROSCIENCE

# The Truth about Shock Therapy

Electroconvulsive therapy is a reasonably safe solution for some severe mental illnesses

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By Scott O. Lilienfeld, Hal Arkowitz on May 1, 2014



THE CONVERSATION

MENTAL HEALTH

# Electroconvulsive Therapy: A History of Controversy, but Also of Help

Critics have portrayed ECT as a form of medical abuse. Yet many psychiatrists, and more importantly, patients, consider it to be safe and effective. Few medical treatments have such disparate images

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By Jonathan Sadowsky, The Conversation on January 13, 2017



## HEALTH

# The Return of Electroshock Therapy

Can Sarah Lisanby help an infamous form of depression treatment shed its brutal reputation?

By Dan Hurley



# TED TALK



<https://youtu.be/AcmarVpo2xE>

# DARTMOUTH-HITCHCOCK

<https://youtu.be/-T0mwzXHgvl>

# ECT IS:

- Life-saving
- Safe
- Effective
- Legal
- Humane
- Done with proper consent

CURRENT PRACTICE OF ECT

# INDICATIONS FOR ECT

- Severe and/or Treatment-refractory conditions
- Psychiatric indications:
  - Catatonia
  - Post-partum psychosis
  - Major Depression
  - Bipolar Disorder – Depression
  - Bipolar Disorder – Mania
  - Schizophrenia
- Non-psychiatric conditions
  - Refractory status epilepticus
  - Encephalitis/encephalopathy
  - Neuroleptic Malignant Syndrome (NMS)

# INFORMED CONSENT

- Before treatment starts, informed consent **MUST** be obtained.
- Patient provided with information about treatment, including risks, benefits, and alternatives.
- Consent documented with a signed form.
- Legal restrictions limit anyone providing consent for ECT for another person

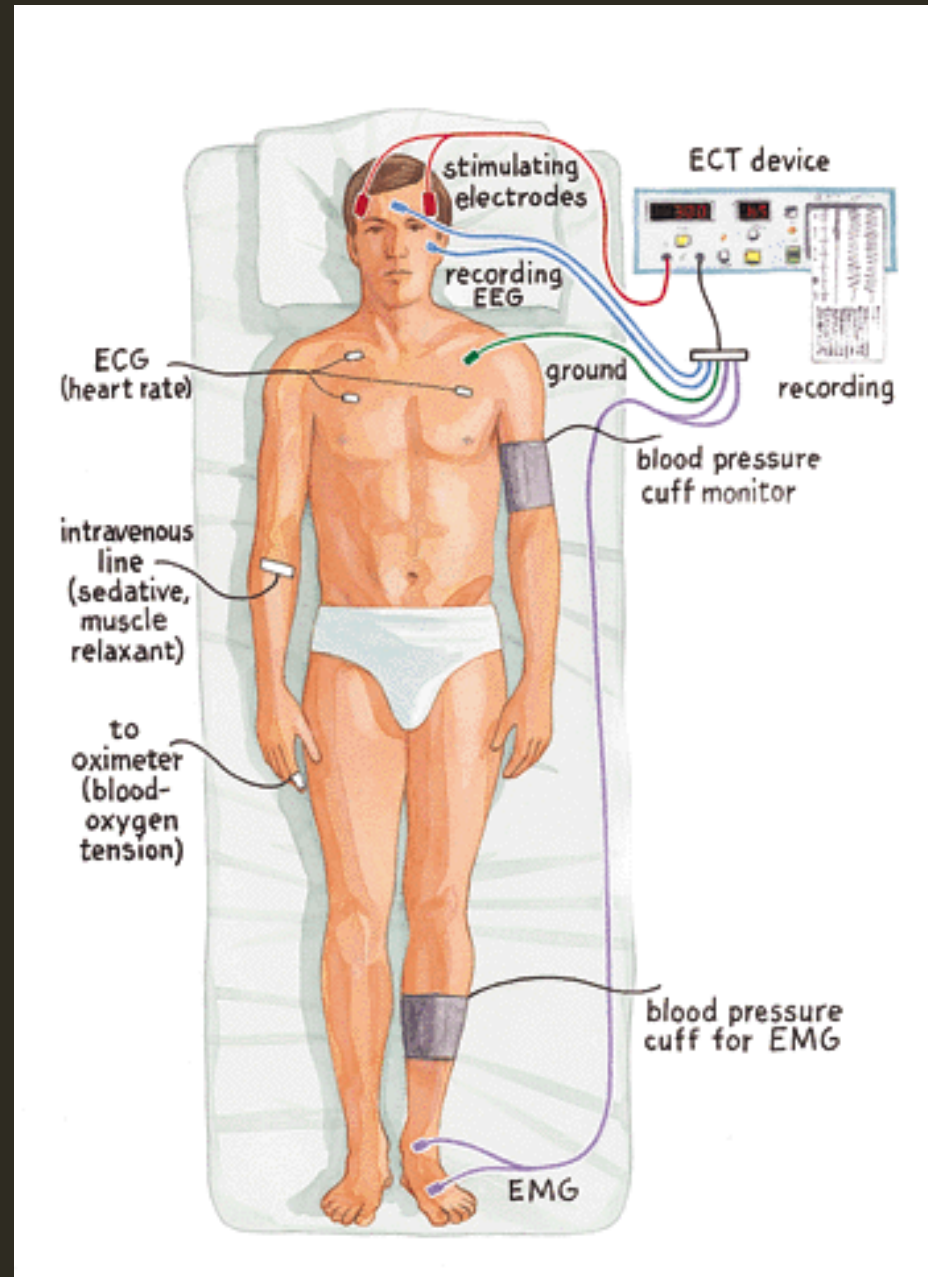
# THE DAY OF AN ECT TREATMENT

- Most patients come from home for treatments
- Arrive at procedure center in the morning
  - Nothing to eat or drink after midnight
- Nurses assist with preparation
  - Change into hospital gown, secure belongings
  - EKG to monitor heart
- Meet with Doctors before procedure (Psychiatrist, Anesthesiologist)
  - Review history and physical exam. Labs if needed.



# OUR MONITORS AND EQUIPMENT

- EEG
  - Frontal recording electrode(s)
  - Bilateral mastoid references
  - Clavicular/deltoid ground
- Blood pressure cuff (ankle)
- Bite block
- Stimulating electrodes



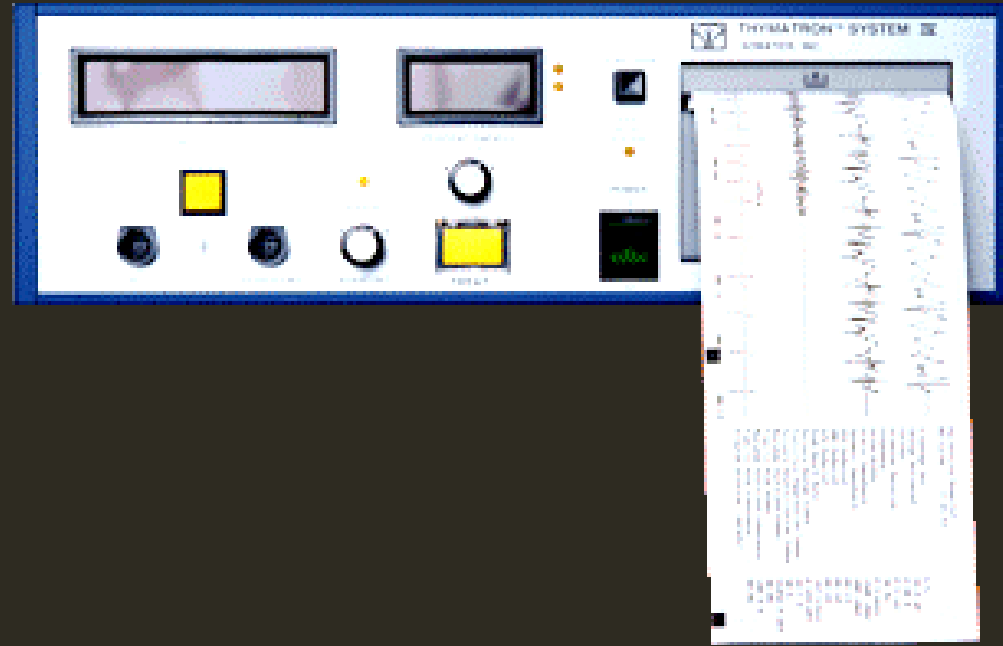
(Fink M. Electroshock revisited. American Scientist. March-April 2000.)

ECT PROCEDURE

# ANESTHESIA FOR ECT

- Needs rapid sedation, short duration, and rapid recovery.
- Must not interfere with controlled seizure induction
- Anesthetic agent
  - Methohexital; etomidate; ketamine; propofol
- Muscle relaxant/paralytic
  - Succinylcholine or rocuronium
- Breathing supported by oxygen/ventilation mask
- Close monitoring:
  - EKG
  - Blood Pressure
  - Breathing/pulse oximetry

## Thymatron™ System IV - Integrated ECT Instrument



(Reproduced with permission from: Somatics, LLC)

# ELECTRICAL STIMULUS

Brief-pulse square-wave AC

Voltage approx. 200V (based upon 220  $\Omega$  impedance)

Current 0.9A

Frequency 30 - 70Hz

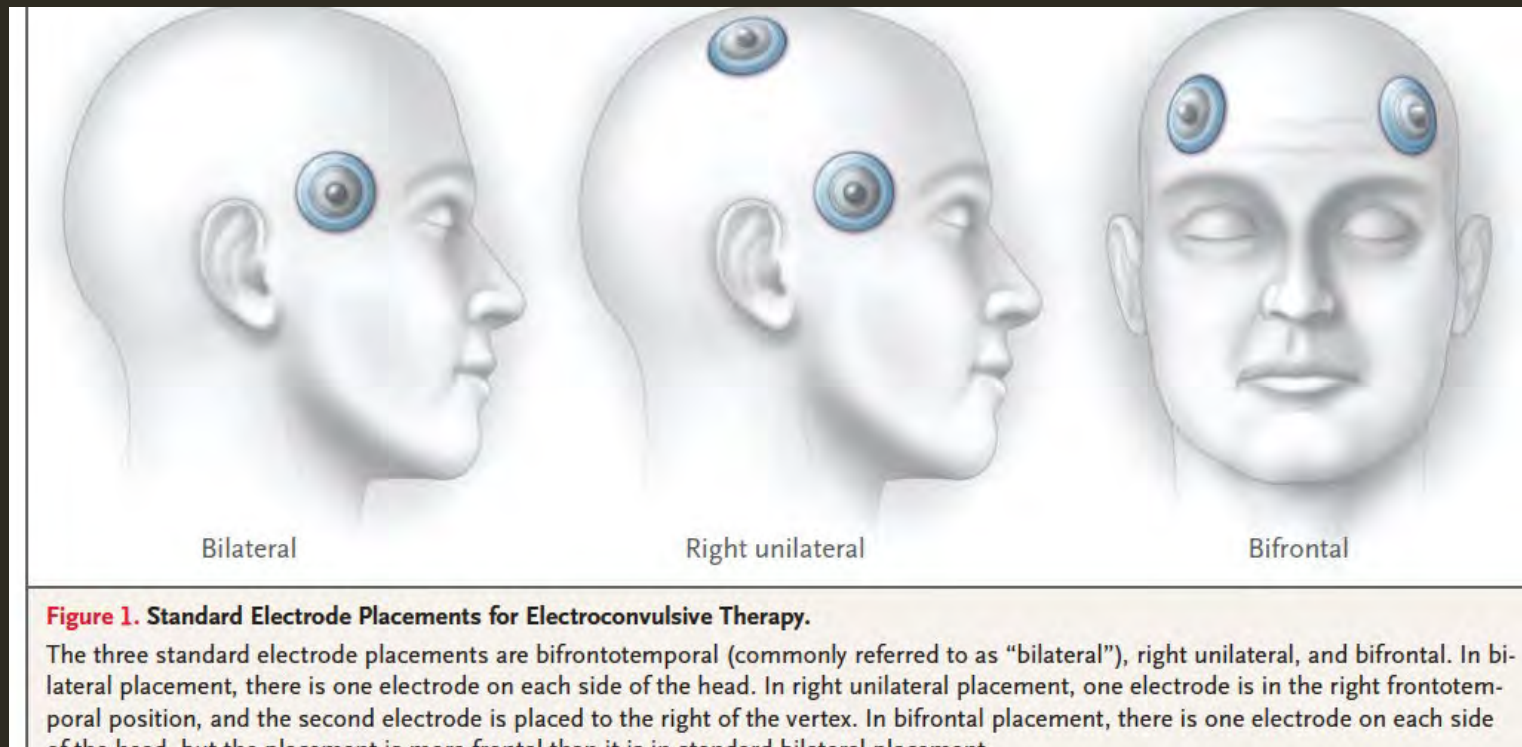
Pulsewidth 0.25 - 2 msec

- Usual 0.25ms (ultrabrief) or 0.5ms (brief)

Duration 0.1 - 8 sec

Charge 25 - 504mC (5 - 99J)

# ELECTRODE PLACEMENT



# TYPICAL ECT TREATMENT

- Target seizure duration  $\geq 30$  seconds
- Monitor motor and EEG duration
- 20-30 min. ■ Seizure aborted if  $> 3$  minutes
- Monitor/manage blood pressure, pulse, breathing
- Patient wakes from anesthesia
- 30-90 min. ■ Recovery/return home



# TYPICAL ECT COURSE

- Index course 8 - 12 treatments
- 2 -3 treatments per week
- Treat until improvement plateaus
  - No further improvement after 2 treatments
- If not improving:
  - After 5-6 treatments: Consider change in treatment parameters
  - After 10-12 treatments: Consider end of course

# MAINTENANCE ECT

- Consider when:
  - Severe illness and clear response
  - Prior response and relapse after end of course
- Usual goal: monthly treatment
- Reassess every ~6 months
- Monitor for memory problems

# HOW DOES ECT WORK?

- Not completely understood
  - like many medical/psychiatric treatments
- Massive release of neurotransmitters – starts a cascade of neuroplasticity
- Decreased overall level of neuroexcitation (increased GABA tone)
- Post-ictal electrophysiologic state of brain conducive to reduced symptoms.
- All of the above? Other factors we don't know yet?

# CONSENT: PATIENTS LACKING CAPACITY

HCPOA (activated) and guardians cannot consent (per WI law) *for treatment of psychiatric conditions*

Administration of ECT to person unable to provide consent (e.g. – severe psychosis; catatonia) requires court order

Psychiatric living will?

*Treatment of appropriate non -psychiatric conditions, HCPOA or guardian can consent.*

# COMPLICATIONS AND RISKS

# COMMON POST-PROCEDURE SIDE EFFECTS

- Headache
- Muscle soreness
- Nausea
- Transient confusion/restlessness
- Elevated blood pressure

# RARE BUT SERIOUS RISKS

- Heart problems
  - Severe blood pressure problems
  - Breathing problems
  - Risk of serious problems or death are  $\sim 1:100,000$  treatments.
- 
- Memory problems:
    - “anterograde amnesia – relatively common, but usually mild and not lasting
    - Retrograde amnesia – relatively uncommon, may be long lasting for a smaller number

# MEDICAL COMPLICATIONS

Prolonged blood-pressure elevation

Bradycardia or asystole

Myocardial infarction

Status epilepticus

Headache

Nausea



# PATIENT SCENARIOS

# CATATONIA

A 30 yo man with a history of schizophrenia treated in the community is brought to the hospital by his roommate because he “stopped moving”. In the ED, he is standing beside the bed, staring ahead. He does not respond to questions or commands. He is holding his arms out in an odd posture with his head to the side. At times he is mumbling, repeating words. He is unkempt.

Labs and physical exam were normal, except for mild dehydration.

# GERIATRIC DEPRESSION

A 83 yo woman is brought to the hospital by her family because of worsening depression over the past 6 months. Over the past month, she has barely been eating, refuses to eat, because she believes her “stomach doesn’t work any more”. She has lost 30 pounds. She is admitted due to weight loss and serious complications.

She has a history of depression. She was treated with ECT 50 years ago after the birth of her oldest daughter.

# “TREATMENT-RESISTANT” BIPOLAR DEPRESSION

A 50yo man is referred to the ECT service due to severe ongoing depression. He has had serious depression for the last 9+ months, with little relief despite trying multiple medications. He frequently has serious suicidal thoughts and has a history of past suicide attempts. He is in danger of losing his job, and his finances are still in jeopardy due to risky spending when he had an episode of mania 2 years ago. He feels hopeless that anything will help.

# POST-PARTUM PSYCHOSIS

A 32yo woman is hospitalized after she admits to fears that she will hurt her newborn infant. Since discharge after delivery, she has been struggling to sleep, becoming increasingly tearful and despondent. She admitted to family members that she believes she is evil, and that her family doesn't deserve her. She is afraid she might hurt her baby and thinks she should end her life to prevent this. She states that she hears demons talking to her most of the time. Her friends and family note that she has never been like this before.

# QUESTIONS?

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