NADA - Auricular acupuncture: an aid for tobacco cessation

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Acupuncture in treating addictions

• Currently not considered an “evidence based practice” using the “gold standard” – large, randomized, double-blind, placebo-controlled trials

• We will focus on research and experience that supports “practice based evidence” for the use of a standardized 5-point ear acupuncture protocol based on the National Acupuncture Detoxification Association (NADA)
Tobacco Use Disorder

- Tobacco use is the most important preventable cause of death and disease.
- It is due to an addiction to nicotine.
- Smoking is responsible for 20% of all deaths in the U.S. (McGinnis & Foege, 1999)
  - 446,000 die related to tobacco related illness per year
  - 105,000 from alcohol
  - 39,000 from addictive drugs
- 45% of smokers will die of a tobacco-induced disorder - including lung, oral and other cancers, cardiovascular disease, MI, stroke, COPD, peptic ulcers, etc.
Epidemiology

- 21.3% of the general US population currently use tobacco products (CDC-MMWR 2016;65:685-691)
- 17.9% of adults in Colorado use tobacco (CDC-MMWR 56(38) 2007)
- 39% of 112,000 mentally ill clients in Colorado studied use tobacco (Morris et al. Psych Services 2006;57:1035-1038)
- 80-95% of patients with alcohol dependence use tobacco (Bobo. J Psychoactive Drugs 1989;21:323-329)
- 38.9% of physicians seen in the Colorado Physician Health Program use tobacco (Stuyt et al. AJA 2009;18:103-108)
Prevalence of smoking among psychiatric inpatients by substance abuse history

(Prochaska, Gill and Hall, Psych Services 2004;55:1265-1270)
Tobacco related illnesses are significantly higher in these populations

- Of those discharged from alcoholism treatment, more will later die from nicotine-related diseases than from alcohol-related diseases. (Hurt et al. JAMA 1996;275:1097-1103)
- Study of 20,018 mental illness patients in Ohio – observed deaths were three times higher than expected compared to the general population with mean age of death - 47.7 ± 15.3 years. Heart disease was the leading cause of death. (Miller, Paschal, and Svendsen. Psych Services 2006;57:1482-1487)
THE REALITY

- Smokers drink and drinkers smoke
- Heaviest drinkers are the heaviest smokers
- 80-95% of alcoholics smoke cigarettes
- 70% of alcoholics are heavy smokers $\geq 1$ppd
- Adolescents who begin smoking are 3 times more likely to begin using alcohol
- Smokers are 10 times more likely to develop alcoholism than nonsmokers
Increasing Evidence that Tobacco Use Can Contribute to Relapse to the Drug of Choice (Frosch et al. Exp Clin Psychopharm 2000;8:97-103)
Significant difference in sobriety rates between tobacco users and non-tobacco users (Stuyt EB. Am J Addictions 1997;6:159-167)

Sobriety rates of tobacco users and non-tobacco users followed for one year after treatment

P<.0001
It seems imperative that we do all we can to help these folks quit tobacco use

• And yet very few substance abuse or mental health treatment programs provide tobacco free treatment

• It is virtually impossible to quit using an addictive substance while you are actively using the substance

• Thus the argument for “tobacco-free” treatment
  ▫ Inpatient
  ▫ Residential
  ▫ Outpatient – more difficult to do
This isn’t a new idea.

- “The treatment of inebriates can never be wholly successful til the use of Tobacco in all forms is absolutely dispensed with.”
- D.G. Dodge, Superintendent of the New York State Inebriate Asylum – 1877
- From Slaying the Dragon by William L. White, pg 36
Acupuncture for Addiction Treatment

• Initially discovered by Dr. Wen in 1972—neurosurgeon in Hong Kong found serendipitously that electrical stimulation of an ear point used as preoperative anesthetic abated physical withdrawal of opium

• He then published successfully treating 40 heroin- and opium-addicted individuals (Asian J Med 1973;9:138-141)

• “We don’t claim it’s a cure for drug addiction. If we can treat the withdrawal symptoms, make the patient more comfortable, and alleviate their suffering, then we have achieved something. Our treatment is not the complete answer to drug addiction.” NYT article
NADA history

• The 1970’s in the South Bronx, New York was a time of a rampant opioid epidemic and social unrest
• Lincoln Hospital developed a Methadone Detox program – one of the first of its kind
• The impoverished community of the South Bronx was looking for improved treatment services as part of the social justice movement, they wanted more natural, non-pharmaceutical approaches
NADA history

• Michael Smith MD and colleagues adopted Dr. Wen’s method and over several years, with input from the clients, they added other ear points.

• In addition to lung point – they added Shen Men (spirit gate), and points for the sympathetic nervous system, kidney and liver.

• They dropped the electrical stimulation and found that manual stimulation was more “tonifying”, producing a more prolonged effect.
NADA

• The National Acupuncture Detoxification Association was founded and incorporated in 1985 by Dr. Smith and others to promote the training of behavioral health clinicians
• The term “acudetox” was adopted to differentiate it from other forms of acupuncture
• Lincoln was the largest training institute for Acupuncture Detoxification Specialists (ADS) and people came from all over the world to be trained until it closed in 2011
Use of NADA spread by word of mouth

- Primarily because there was no money behind it (as in pharmaceutical aids to treatment)
- The use of acudetox has evolved and has been found to be a useful tool in substance abuse treatment as well as:
  - Drug courts/behavioral courts
  - Mental health
  - Trauma
  - Chronic pain management
- However, it is not a “stand-alone” treatment
Trials of acupuncture for drug dependence: a recommendation for hypotheses based on the literature
White, A. Acupunct Med 2013;31:297-304

Systematic review: 48 studies (included body points, other protocols), manual and electrical stimulation
Difficult to compare studies due to multiple variables in protocol/measures/controls
Studies with sham acupuncture controls less likely to be positive (33%) than those with non-acupuncture controls (75%) – (80% for NADA studies with non-acupuncture controls)
Continued use by providers despite “unsupportive evidence” means “mismatch”
Cost-effectiveness in substance abuse treatment  


- 22 patients treated with NADA, 22 without, all received treatment as usual in an outpatient HMO chemical dependency program
- At 6 months follow-up the acupuncture group had
  - Higher program completion (74% vs 44%)
  - Higher rates of negative urines (96% vs 85%)
  - Fewer inpatient rehab days (39 vs 57 days)
  - Cost incurred for acupuncture group = $15,580
  - Cost for non-acupuncture group = $17,890
Acupuncture in tobacco cessation
White AR et al. Acupuncture and related interventions for smoking cessation. Cochrane Database of Systematic Reviews 2014

• Included 38 studies comparing acupuncture, various points, acupressure, laser therapy, electrostimulation with either no intervention, sham treatment or another intervention
• Concluded no real benefit from acupuncture at 6-month follow-up and it was less effective than NRT
• However, acupuncture treatments were at most 2 times per week or less and NRT could be up to 30 times per day?
• Acupuncture is obviously not a “stand-alone” treatment – especially when only 2 times per week
Use of Auricular Acupuncture in Smoking Cessation

- Compared the NADA protocol alone to the NADA protocol plus smoking cessation education to sham acupuncture plus the smoking cessation education
- All acupuncture treatments were 5 x/week for 30 minutes
- Combination of acupuncture plus education 40% cessation, compared to 22% for sham plus education to 10% for acupuncture alone
Circle Program - Integrated Dual-Diagnosis Treatment

- 20-bed, 90-day, fully integrated dual diagnosis inpatient treatment program for adults, ages 18-69, funded by the State of Colorado
- All patients have a Chemical Dependence diagnosis and an Axis I Mental Illness
- All have failed multiple previous treatment programs (IOP, inpatient, residential)
- 75% - 80% - treatment is a condition of probation/parole/diversion
- Became tobacco-free in January 2000, fully integrating tobacco into every aspect of treatment
Treatment for tobacco cessation

• If a patient comes in using tobacco they are offered the use of a nicotine patch with decreasing dose over the first 3-6 weeks and then are expected to be off the last 6 weeks
• They are offered NADA treatments in a group 4-5 times per week for 45 minutes and additional as prn, depending on availability of trained staff
• Tobacco is fully integrated into the curriculum and treated the same as alcohol and other drugs
• Cue Exposure includes tobacco
## Patient’s decision regarding tobacco use before and after program is tobacco free

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</thead>
<tbody>
<tr>
<td>Plans to continue tobacco</td>
<td>75%</td>
<td>61%</td>
<td>40%</td>
<td>33%</td>
</tr>
<tr>
<td>Quit using tobacco with plans to remain abstinent</td>
<td>12%</td>
<td>24%</td>
<td>51%</td>
<td>55%</td>
</tr>
<tr>
<td>No tobacco use on admit</td>
<td>13%</td>
<td>15%</td>
<td>9%</td>
<td>12%</td>
</tr>
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</table>
Outcome Study

(Stuyt EB. Enforced abstinence from tobacco during in-patient dual-diagnosis treatment improves substance abuse treatment outcomes in smokers. Am J Addiction 2014)

- January 2009 – December 2011 – 231 patients were admitted to the Circle Program at CMHIP
  - 55% male
  - 88% using tobacco daily
  - 74% criminal commitment, 6% civil commitment, 20% voluntary
- 80% completed the three month program
- 86% of the 179 eligible enrolled in the year long follow-up after treatment
<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Category</th>
<th>Completed Program</th>
<th>Did Not Complete</th>
<th>P value</th>
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<tbody>
<tr>
<td></td>
<td>N = 185 (80%)</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Gender</td>
<td>Male</td>
<td>99 (78%)</td>
<td>28 (22%)</td>
<td>.4104</td>
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<tr>
<td></td>
<td>Female</td>
<td>86 (83%)</td>
<td>18 (17%)</td>
<td>NS</td>
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<tr>
<td>Race</td>
<td>Caucasian</td>
<td>148 (82%)</td>
<td>33 (18%)</td>
<td>.3492</td>
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<td>Hispanic</td>
<td>26 (76%)</td>
<td>8 (24%)</td>
<td>NS</td>
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<tr>
<td></td>
<td>African-American</td>
<td>9 (64%)</td>
<td>5 (36%)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Asian</td>
<td>2 (100%)</td>
<td>0 (0%)</td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>Years ± SD</td>
<td>36 ± 11</td>
<td>33 ± 11</td>
<td>.1258</td>
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<tr>
<td></td>
<td>Range</td>
<td></td>
<td></td>
<td>NS</td>
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<tr>
<td>Primary Drug</td>
<td>Alcohol</td>
<td>65 (84%)</td>
<td>12 (16%)</td>
<td>.4898</td>
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<td>Dependence</td>
<td>Polysubstance</td>
<td>54 (76%)</td>
<td>17 (24%)</td>
<td>NS</td>
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<td>Diagnosis</td>
<td>Methamphetamine</td>
<td>28 (82%)</td>
<td>6 (18%)</td>
<td></td>
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<tr>
<td></td>
<td>Cocaine</td>
<td>20 (83%)</td>
<td>4 (17%)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Opiates</td>
<td>12 (80%)</td>
<td>3 (20%)</td>
<td></td>
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<tr>
<td></td>
<td>Cannabis</td>
<td>6 (60%)</td>
<td>4 (40%)</td>
<td></td>
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<td>Characteristic</td>
<td>Category</td>
<td>Completed Program</td>
<td>Did Not Complete</td>
<td>P value</td>
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<tr>
<td></td>
<td></td>
<td>N = 185 (80%)</td>
<td>N=46 (20%)</td>
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<tr>
<td><strong>Primary Psychiatric Diagnosis</strong></td>
<td>Bipolar D/O</td>
<td>31 (78%)</td>
<td>9 (22%)</td>
<td>.4834 NS</td>
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<td></td>
<td>Other Affective D/O</td>
<td>42 (82%)</td>
<td>9 (18%)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>PTSD</td>
<td>55 (82%)</td>
<td>12 (18%)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Other Anxiety D/O</td>
<td>24 (86%)</td>
<td>4 (14%)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Psychotic D/O</td>
<td>13 (59%)</td>
<td>9 (41%)</td>
<td></td>
</tr>
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<td></td>
<td>Substance Induced</td>
<td>12 (86%)</td>
<td>2 (14%)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Other</td>
<td>8 (89%)</td>
<td>1 (11%)</td>
<td></td>
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<tr>
<td><strong>Tobacco Use On Admission</strong></td>
<td>Yes</td>
<td>159 (78%)</td>
<td>44 (22%)</td>
<td>.08 NS</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>26 (93%)</td>
<td>2 (7%)</td>
<td></td>
</tr>
<tr>
<td>Characteristic</td>
<td>Category</td>
<td>Completed Program N = 185 (80%)</td>
<td>Did Not Complete N = 46 (20%)</td>
<td>P value</td>
</tr>
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<tr>
<td><strong>Legal Status</strong></td>
<td>Criminal Commitment</td>
<td>146 (85%)</td>
<td>25 (15%)</td>
<td>.0013</td>
</tr>
<tr>
<td></td>
<td>Civil Commitment</td>
<td>7 (47%)</td>
<td>8 (53%)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Voluntary</td>
<td>32 (71%)</td>
<td>13 (29%)</td>
<td></td>
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<tr>
<td><strong>Tobacco Use in treatment</strong></td>
<td>Yes</td>
<td>36 (67%)</td>
<td>18 (33%)</td>
<td>.0092</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>149 (84%)</td>
<td>28 (16%)</td>
<td></td>
</tr>
<tr>
<td><strong>Tobacco Use plan for after treatment</strong></td>
<td>Wants to stay quit</td>
<td>143 (93%)</td>
<td>10 (7%)</td>
<td>&lt;.0001</td>
</tr>
<tr>
<td></td>
<td>Plans to use tobacco</td>
<td>32 (48%)</td>
<td>35 (52%)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Ambivalent</td>
<td>10 (91%)</td>
<td>1 (9%)</td>
<td></td>
</tr>
<tr>
<td>Characteristic</td>
<td>Category</td>
<td>Completed Program N = 185 (80%)</td>
<td>Did Not Complete N = 46 (20%)</td>
<td>P value</td>
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<tr>
<td>Axis II most prevalent diagnoses</td>
<td>No Axis II</td>
<td>48 (98%)</td>
<td>1 (2%)</td>
<td>&lt;.0001</td>
</tr>
<tr>
<td></td>
<td>Antisocial PD</td>
<td>22 (59%)</td>
<td>15 (41%)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Borderline PD</td>
<td>68 (87%)</td>
<td>10 (13%)</td>
<td></td>
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<tr>
<td>Use of NADA acudetox</td>
<td>Yes</td>
<td>162 (84%)</td>
<td>32 (16%)</td>
<td>.0059</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>23 (62%)</td>
<td>14 (38%)</td>
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</tbody>
</table>
Patients using tobacco were more likely to use NADA acudetox and were more likely to remain in treatment longer the more sessions they had.

Regression Plot
Split By: tobacco
Cell: no

Regression Plot
Split By: tobacco
Cell: yes

\[ Y = 79.175 + 0.287 \times X; R^2 = 0.048 \]

\[ p = 0.2616 \]

\[ Y = 69.048 + 0.811 \times X; R^2 = 0.089 \]

\[ p < 0.0001 \]
**Regression Plot**
*Split By: tobacco p tx*
*Cell: plans to smoke*

Y = 48.441 + 1.592 * X; R^2 = .155

**p = .001**

**Regression Plot**
*Split By: tobacco p tx*
*Cell: wants to quit*

Y = 84.307 + .137 * X; R^2 = .01

**p = .2714**

**Regression Plot**
*Split By: tobacco p tx*
*Cell: n/a*

Y = 79.077 + .276 * X; R^2 = .045

**p = .2879**

**Regression Plot**
*Split By: tobacco p tx*
*Cell: ambivalent*

Y = 88.694 - .336 * X; R^2 = .055

**p = .4896**
Outcome Data for one year follow-up

• 140 patients completed one year follow-up after discharge from the program. 14 (9%) patients were lost to follow-up.
• 77 (54%) sober and doing well at end of year
  ▫ 42 (30%) continuously abstinent
  ▫ 25 (18%) relapsed but got back on track
  ▫ 9 (6%) one or more slips but back on track
• 22 (16%) continuing to relapse
• 34 (24%) re-offended and incarcerated
• 4 (3%) deceased
• 4 (3%) relapsed and back in treatment
Figure 1. Status at the end of the year follow-up for 140 patients
There was no difference between status at the end of the year and:

- Gender ($p=.855$)
- Race ($p=.459$)
- Primary drug dependence ($p=.737$)
- Primary psych diagnosis ($p=.78$)
- Tobacco use prior to admission ($p=.604$)
- Legal status ($p=.062$)
- Presence of Axis II diagnosis ($p=.387$)
Tobacco use was significantly correlated with relapse

- Non-tobacco use increased from 14% to 27% at the end of the year.
- Those using tobacco were much more likely to relapse. (p=.01)
- Those continuously abstinent were more likely to not be using tobacco. (p=.03)
- For those who relapsed to drugs or alcohol
  - 9 ± 5 months to first relapse for non-tobacco user
  - 6 ± 5 months to first relapse for tobacco user (p=.008)
Quitting tobacco in treatment and remaining tobacco free improves ability to maintain sobriety

<table>
<thead>
<tr>
<th>Tobacco Use</th>
<th>Relapsed to drugs/alcohol</th>
<th>Average time to first relapse</th>
</tr>
</thead>
<tbody>
<tr>
<td>Continued to use tobacco</td>
<td>69%</td>
<td>6 ± 5 months</td>
</tr>
<tr>
<td>N=102</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quit tobacco use in treatment</td>
<td>28% *</td>
<td>9 ± 4 months**</td>
</tr>
<tr>
<td>N=18</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Not using tobacco on admission</td>
<td>60%</td>
<td>8 ± 5 months</td>
</tr>
<tr>
<td>N=20</td>
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</tbody>
</table>

*p=.0115, **p=.008
NADA as an aid in treating patients with Borderline Personality Disorder

Patients with Borderline PD

• 49 females – 83% completed program
  ▫ 44 (90%) of those completing used acudetox
    ⬤ Average number of sessions = 12 ± 8
  ▫ 7 (70%) of those not completing used acudetox
    ⬤ Average number of sessions = 6 ± 6

• 19 males – 100% completed program
  ▫ 18 (95%) used acudetox
  ▫ Average number of sessions = 14 ± 9
Use of NADA acudetox by Personality

Program completion by acudetox sessions

<table>
<thead>
<tr>
<th>Personality</th>
<th>Average Number of Acudetox Sessions</th>
<th>Did Not Complete</th>
<th>Completed Program</th>
</tr>
</thead>
<tbody>
<tr>
<td>Antisocial PD</td>
<td>7</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>Borderline PD</td>
<td>13</td>
<td>7</td>
<td>7</td>
</tr>
<tr>
<td>no Axis II</td>
<td>11</td>
<td>11</td>
<td>12</td>
</tr>
</tbody>
</table>
Patient with BPD did just as well as others without BPD by year’s end

**Status at end of year follow-up**

- **Sober and doing well**: 54% (Total Group N=340), 55% (Borderline PD N=51)
- **Deceased**: 3% (Total Group), 2% (Borderline PD)
- **Incarcerated**: 24% (Total Group), 18% (Borderline PD)
- **Relapsing**: 19% (Total Group), 25% (Borderline PD)
Those with Borderline PD were more likely to quit tobacco use after treatment.
For all 140 patients

- Those not using tobacco at the end of the follow-up period participated in significantly more NADA acudetox sessions when they were in treatment (15±9)
- Than those who were still using tobacco (12±8)
- p=0.04
So Why Is NADA helpful in BPD?

- Patients with BPD usually come from a back ground of chaos; they think this is their “normal” and will seek to create chaos when it doesn’t exist, to feel normal.
- They benefit from grounding techniques to experience a “new normal” – anything to increase the parasympathetic tone is helpful.
- Start with NADA 5-point ear acupuncture protocol
  - Immediate calming effect
  - Allows the patient to learn what it is like to sit still
  - Helps with transference and counter-transference
- They are then more open to learning dialectical behavioral therapy (DBT), mindful meditation, biofeedback, tapping, yoga, Tai Chi, progressive muscle relaxation, etc.
Who can be trained in NADA?

- Depends on state laws
- 21 states have some sort of NADA exemption for expanded scope of practice, rather than being limited to acupuncturists or physicians (Carter K, Olshan-Perlmutter M. NADA Protocol. *J Addict Nurs.* 2014;25:182-187)
- Some states have very strict supervisory and scope requirements that limit the accessibility of this protocol
COLORADO LAW - PERFORMANCE OF AURICULAR ACUDETOX BY TRAINED MENTAL HEALTH PROFESSIONALS

- SB 13-207—law change to expand the scope of practice of the NADA protocol to include:
  - Licensed psychologists
  - Licensed social workers
  - Licensed professional counselors
  - Licensed addiction counselors, CACIIIs
  - Marriage and Family Therapists
  - Registered psychotherapists
How NADA is used in Colorado

- Substance abuse treatment programs
- Community Mental Health Centers
- Community Health Care Clinics
- Federally funded integrated health care clinics
- Hospice
- Hospital Emergency Rooms
- Cancer Centers
- Private practice therapists
- Medical Reserve Corps after traumatic event/disaster - CAMRC
Specifics

① To learn more about the NADA protocol and acudetox contact the National Acupuncture Detoxification Association – 888-765-NADA

② The website www.acudetox.com can give you information about your state law to determine if you can practice this protocol in your state

③ You can find trainer contact information and trainings on the website or through the office

④ The NADA office/board performs advocacy and education to help if you are interested in changing the law in your state to expand the scope of practice for this protocol

⑤ The NADA office can link you with NADA treatment providers who have developed policies and procedures and credentialing processes

⑥ Not currently covered by Medicaid (except for Oregon)

⑦ Very low cost – many just absorb the cost of supplies, some bill for group therapy – 30 minutes of NADA and 30 minutes of processing

⑧ Main cost is training the provider