

The Treatment of Acute Alcohol Withdrawal

General Internal Medicine Grand Rounds
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Pharmacology

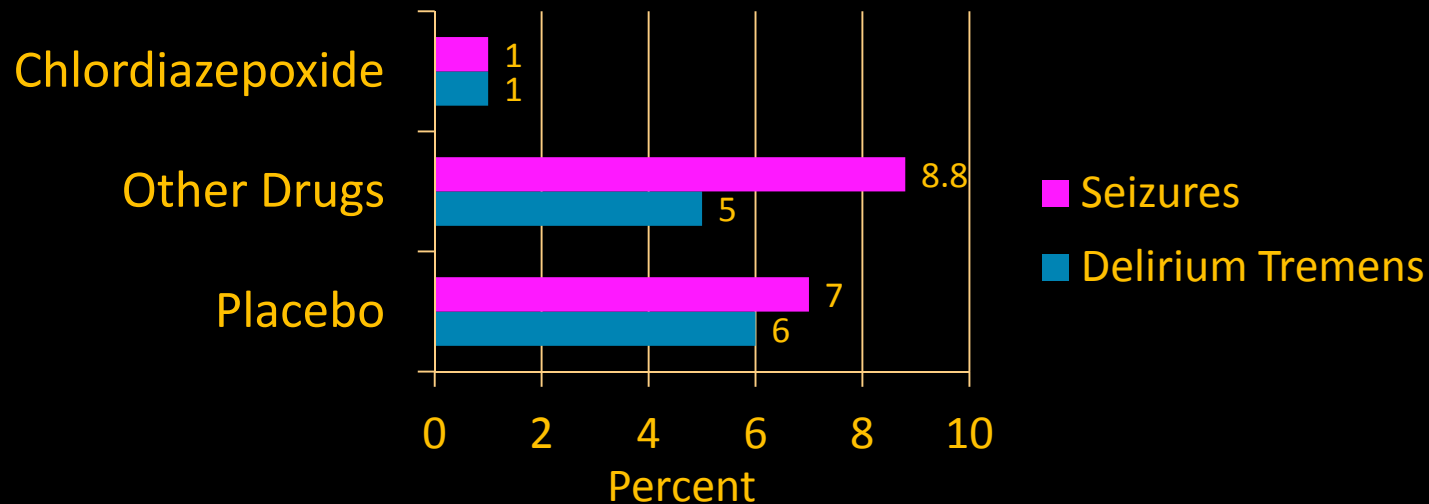
- Ethanol
- Benzodiazepines
- Chlormethiazole
- Barbiturates
- Propofol
- Anticonvulsants
(Carbamazepine)
- Baclofen
- Antipsychotics
- β Blockers
- Clonidine
- Dexmedetomidine

Ethanol

- Short half life
- Narrow therapeutic index
- Gastric irritation
- Risk of metabolic derangements
- Risk of Wernicke-Korsakoff
- Poor surgical healing
- Expensive
- Ethical issues

Benzodiazepines

- 1969 Kaim article
 - 537 alcoholics
 - Double blind
 - Chlordiazepoxide, chlorpromazine, hydroxyzine, thiamine



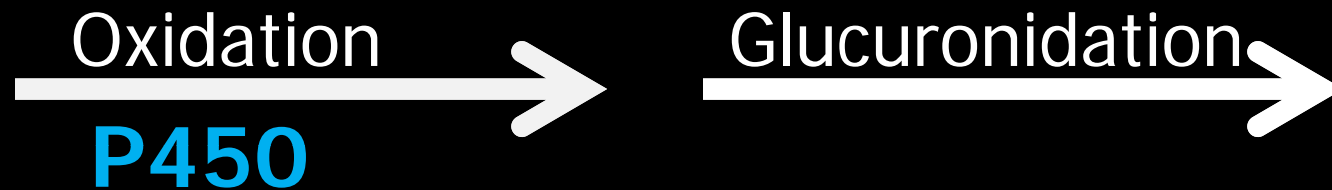
Kaim S, Klett C, Rothfeld B. Treatment of the acute alcohol withdrawal state: A comparison of four drugs. *Amer. J. Psychiat.* 1969;125:1640-1646.

Benzodiazepines

- Potentiate binding of GABA to GABA-A receptor
- Avoid IM for chlordiazepoxide and diazepam
 - Slowly & erratically absorbed
- Long vs Short half life
 - Seizures after cessation of short acting (oxazepam)

Benzodiazepines

- Chlordiazepoxide & Diazepam:

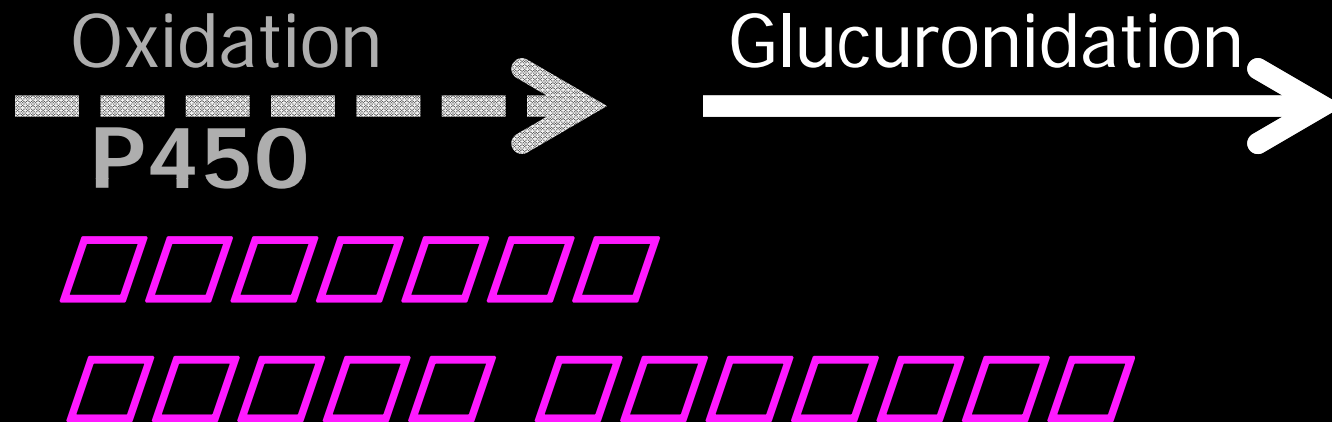


- Lorazepam & Oxazepam:



Benzodiazepines

- Chlordiazepoxide & Diazepam:



- Lorazepam & Oxazepam:



Benzodiazepines

Elderly & Severe Liver Disease

- **Chlordiazepoxide & Diazepam:**
 - Increased terminal elimination $\frac{1}{2}$ life
 - Increased volume of distribution
 - Greater accumulation of metabolites
- **Lorazepam & Oxazepam:**
 - Preferred in Elderly & Severe Liver Disease

Chlormethiazole

- Sedative, hypnotic & anti-convulsant
- Enhances GABA-A
- Short $\frac{1}{2}$ Life
- Only available in Europe

Chlormethiazole

- Equivalent to chlordiazepoxide
- Risk respiratory depression & cardiopulmonary collapse
 - Case reports of death in overdose
- Need to taper over 1 week
- Avoid as first line agent

Barbiturates

- Bind to GABA-A receptor
(Inhibitory)
- Inhibit Glutamate receptors
(Stimulatory)
- Risks:
 - Narrow therapeutic window
 - Tachycardia
 - Delirium & coma

Barbiturates

- Few controlled studies
- Avoid as first line, but...
- ? Add when refractory to massive benzodiazepine doses
 - act on different site of GABA-A receptor

Propofol

- Stimulates GABA-A receptor
- Inhibits glutamate receptors

- Need to intubate

Propofol

- Avoid as first line
- Can add when refractory to massive benzodiazepine doses
- Act on different site of GABA-A receptor
 - ? augment benzo effect

Antipsychotics

- Few controlled studies
- ? Adjunct to benzodiazepines
- Lower seizure threshold

Beta Blockers

- Not recommended alone
- Studied in combination with benzos

Beta Blockers

- Evidence of increased:
 - Hallucinations
 - Delirium tremens
 - Seizures
- Make vitals look pretty...
 - mask early symptoms of withdrawal

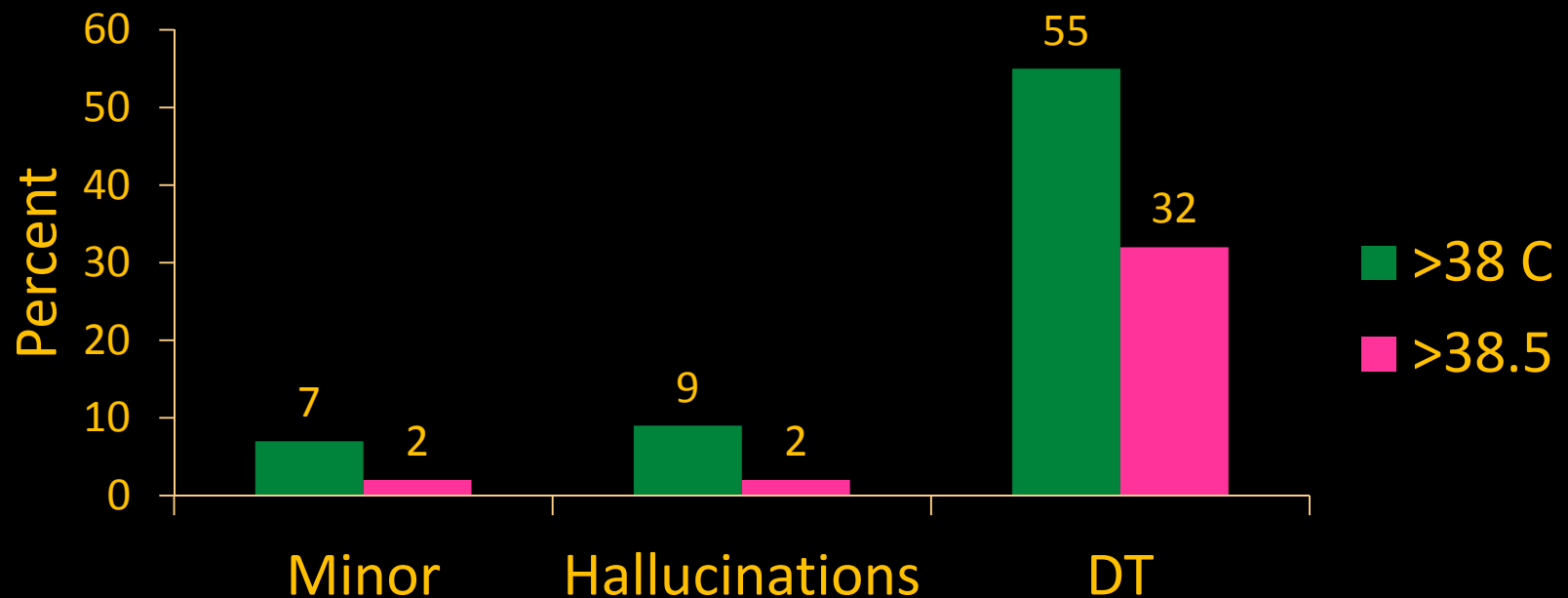
.....Vitals

- Inna Salum Study in Sweden (1972)
 - 1956 - 1961
 - 1,907 encounters
 - Men only

Salum I. Delirium tremens and certain other acute sequels of alcohol abuse. A comparative clinical, social and prognostic study. Copenhagen: Munksgaard, 1972.

Vitals

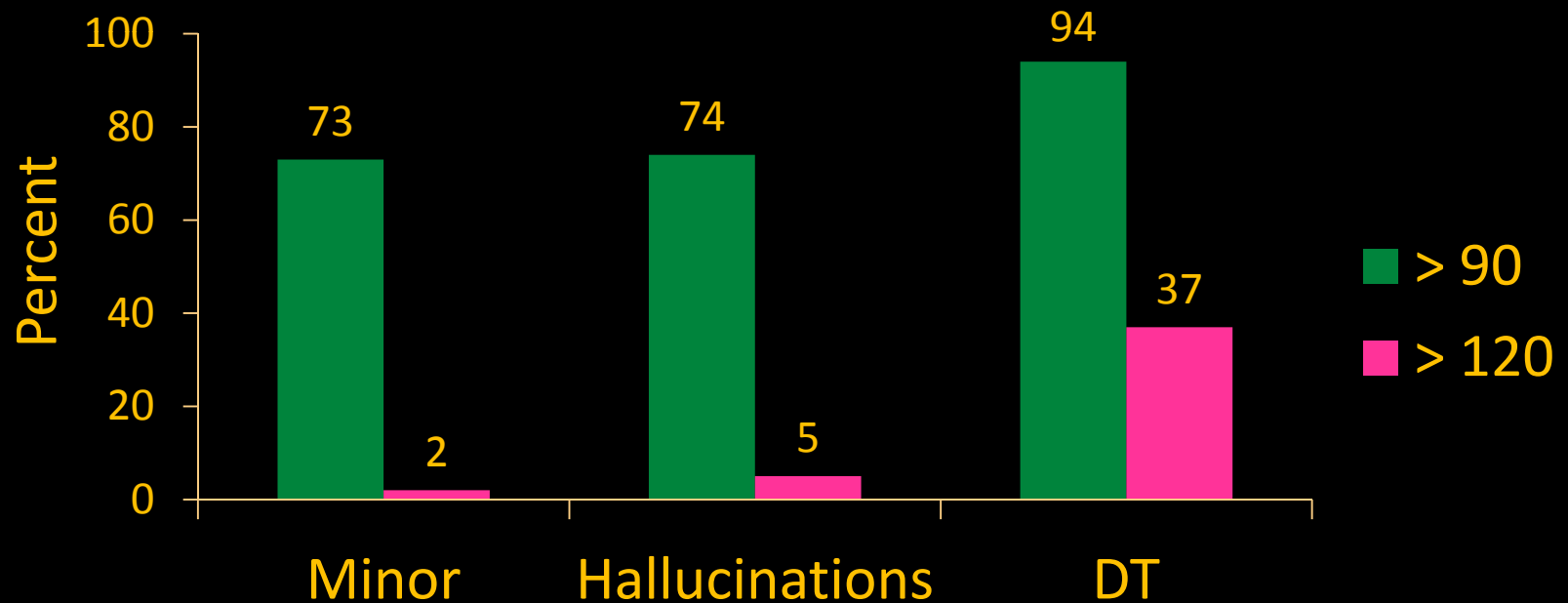
- Fever



Salum I. Delirium tremens and certain other acute sequels of alcohol abuse. A comparative clinical, social and prognostic study. Copenhagen: Munksgaard, 1972.

Vitals

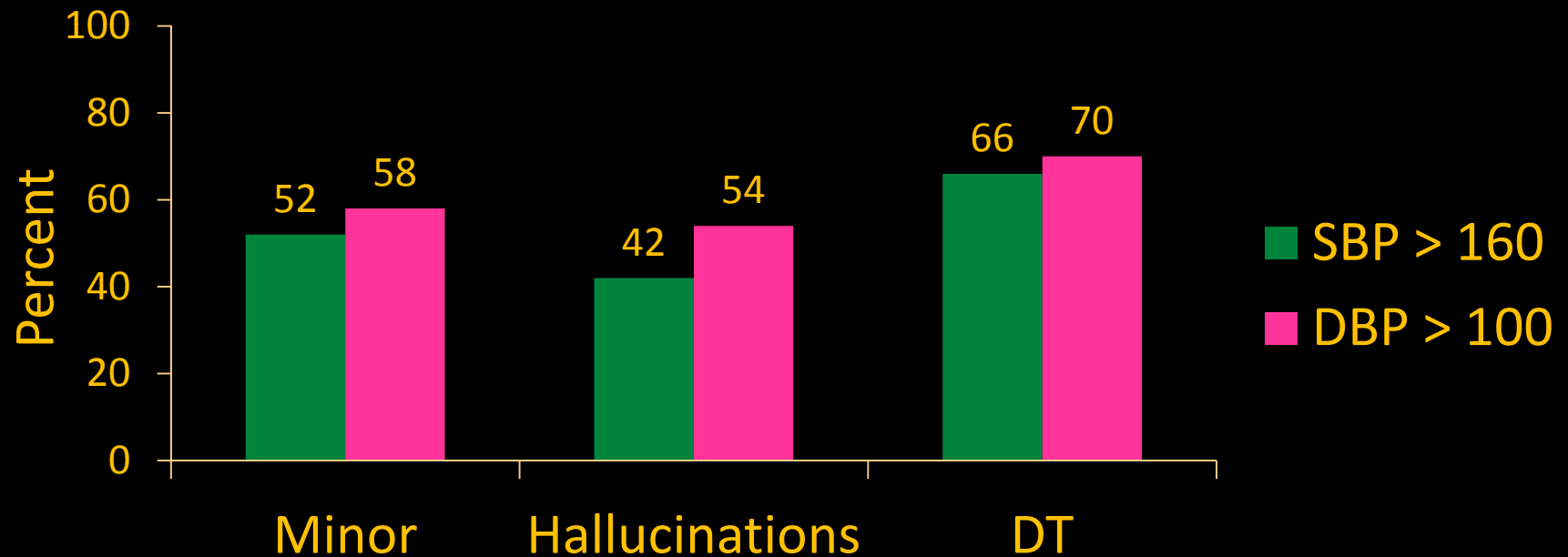
- Tachycardia



Salum I. Delirium tremens and certain other acute sequels of alcohol abuse. A comparative clinical, social and prognostic study. Copenhagen: Munksgaard, 1972.

Vitals

- Hypertension



Salum I. Delirium tremens and certain other acute sequels of alcohol abuse. A comparative clinical, social and prognostic study. Copenhagen: Munksgaard, 1972.

Clonidine

- α -2 agonist
- Makes vitals look pretty...
 - masks sympathetic hyperactivity
- Evidence of increased:
 - Hallucinations
 - Seizures

Dexmedetomidine

- Selective central α -2 agonist
 - Anxiolytic
 - Sedation
 - No respiratory depression
- Other Indications:
 - Non-intubated procedures
 - Critically ill mechanically ventilated patients
- Makes vital signs look pretty
- Studies in progress

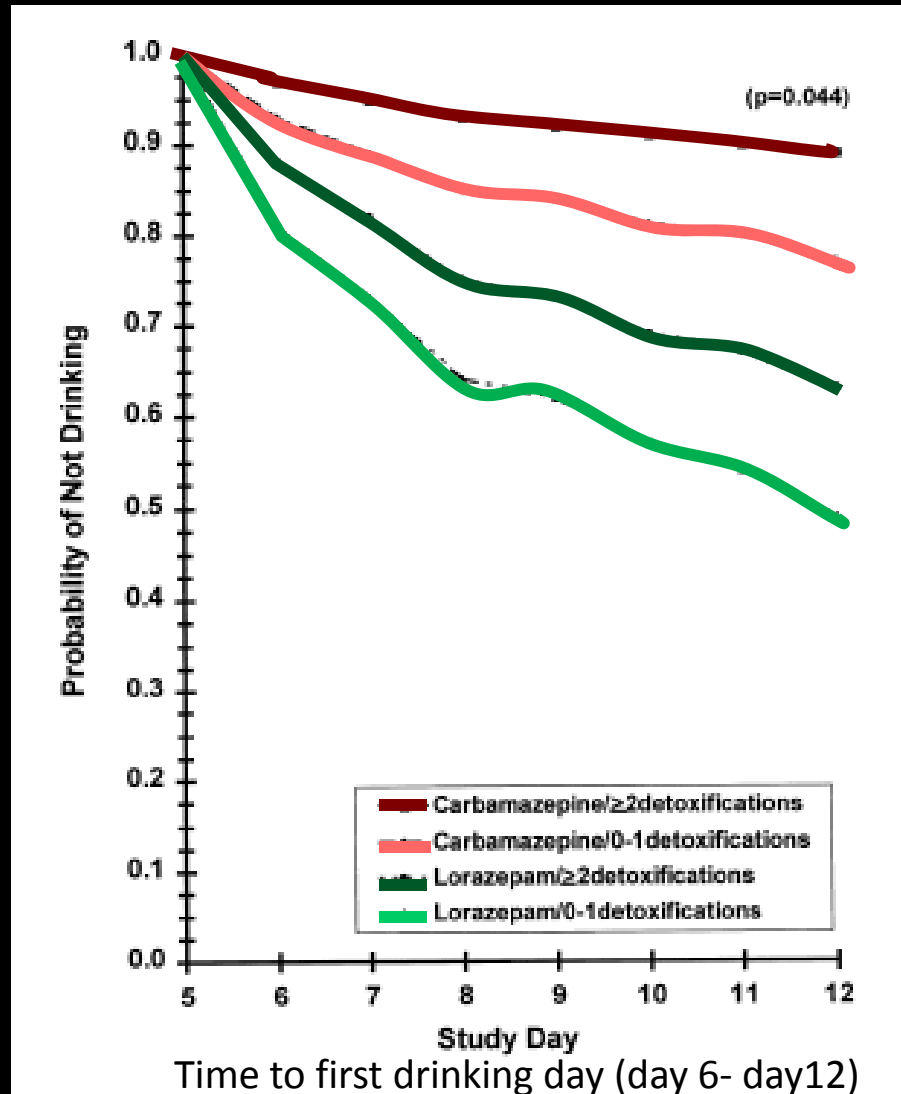
Anticonvulsants

- **Malcolm 2002**
 - 136 Outpatients
 - Mild-moderate withdrawal
 - Compared Lorazepam to Carbamazepine
 - Outcomes:
 - Equal efficacy in decreasing withdrawal
 - Carbamazepine treated patients drank later and drank less

Malcolm R, Myrick H, Roberts J, etc al. The effects of carbamazepine and lorazepam on single versus multiple previous alcohol withdrawals in an outpatient randomized trial. *J Gen Intern Med.* 2002;17:349-355.

Anticonvulsants

- Malcolm 2002



Malcolm R, Myrick H, Roberts J, et al. The effects of carbamazepine and lorazepam on single versus multiple previous alcohol withdrawals in an outpatient randomized trial. *J Gen Intern Med.* 2002;17:349-355.

Anticonvulsants

- Other Benefits
 - No abuse potential
 - No sedation
- Hematologic & Hepatic toxicities
 - Not observed in short detox protocols

Baclofen

- Selective GABA-B receptor agonist
- Mice studies:
 - Reduce withdrawal symptoms
 - Decrease craving
 - Decrease amount of EtOH consumed
 - Prevent sensitization to EtOH stimulant effects

Baclofen

- **Addolorato (2006)** Baclofen vs Diazepam
 - 37 subjects
 - Not blinded
 - “Moderate-Severe” EtOH withdrawal (CIWA > 10)
 - Excluded DTs and hallucinosis

.....Similar decrease in CIWA scores

Addolorato G, Leggio L, Abenavoli L. Baclofen in the treatment of alcohol withdrawal syndrome: A comparative study vs Diazepam. *American Journal of Medicine*. 2006;119(3):276.e13-276.e18.

Baclofen

- Lyon (2011) Baclofen vs. Placebo
 - 31 inpatients
 - Randomized, double-blind
 - All patients on oral Lorazepam for AWS

....reduced dose of lorazepam needed

- but didn't look at withdrawal outcomes

Baclofen

- **Addolorato (2002)** Baclofen vs. Placebo
 - 39 subjects
 - Randomized, double-blind
 - Significant dropout: 15% Baclofen
42% Placebo

- ...Remained abstinent at 1 month:
 - Baclofen: 14/17 (70%)
 - Placebo 4/11 (21%)

Addolorato G, Caputo F, Capristo E, et al. Baclofen efficacy in reducing alcohol craving and intake: A preliminary double-blind randomized controlled study. *Alcohol & Alcoholism*. 2002;37(5): 504-508.

Baclofen

- Garbutt (2010) Baclofen vs Placebo

- 80 subjects
- Randomized, double-blind
- 12 week follow-up

...decreased anxiety in baclofen arm &

No difference in:

- heavy drinking days
- Days abstinent
- Time to first drink
- Time to relapse to heavy drinking

Garbutt J, Kampov-Polevoy A, Galop R, et al. Efficacy and safety of baclofen for alcohol dependence: A randomized, double-blind, placebo-controlled trial. *Alcoholism: Clinical and experimental research*. 2010;34(11): 1849-1857.

3 Approaches to Treatment

- Fixed-Schedule
- Front-Loading
- Symptom-Triggered

Fixed-Schedule

- Example:

Chlordiazepoxide 50 mg PO Q6 hr x 4 doses
then, 25 mg PO Q6 hr x 8 doses

(occasionally have the option of
symptom-guided treatment in addition)

Fixed-Schedule

- **Disadvantage:**
 - Under or over dosing a patient
 - 60% of patients may require no treatment
 - Increased Length of Stay
- **Advantage:**
 - Prevents kindling
 - Prevents seizures
 - Can be used in medically ill patients

Kindling

- 1969 – Goddard, McIntyre & Leech
 - Electrical stimulation to animals

- Alcohol withdrawal:
 - Repeated episodes of withdrawal develop:
 - Progressively shorter duration of time b/w last drink & onset of symptoms
 - Progressively more severe symptoms

Kindling

- Ulrichsen 1995:

- Control: (80 rats)

X - X - X - X - X - X - X - X - X - X - X - X - X -

- Diazepam Treated Group: (80 rats)

X - X - X - X - X - X - X - X - X - X - X - X - X -

withdrawal episodes 10-13

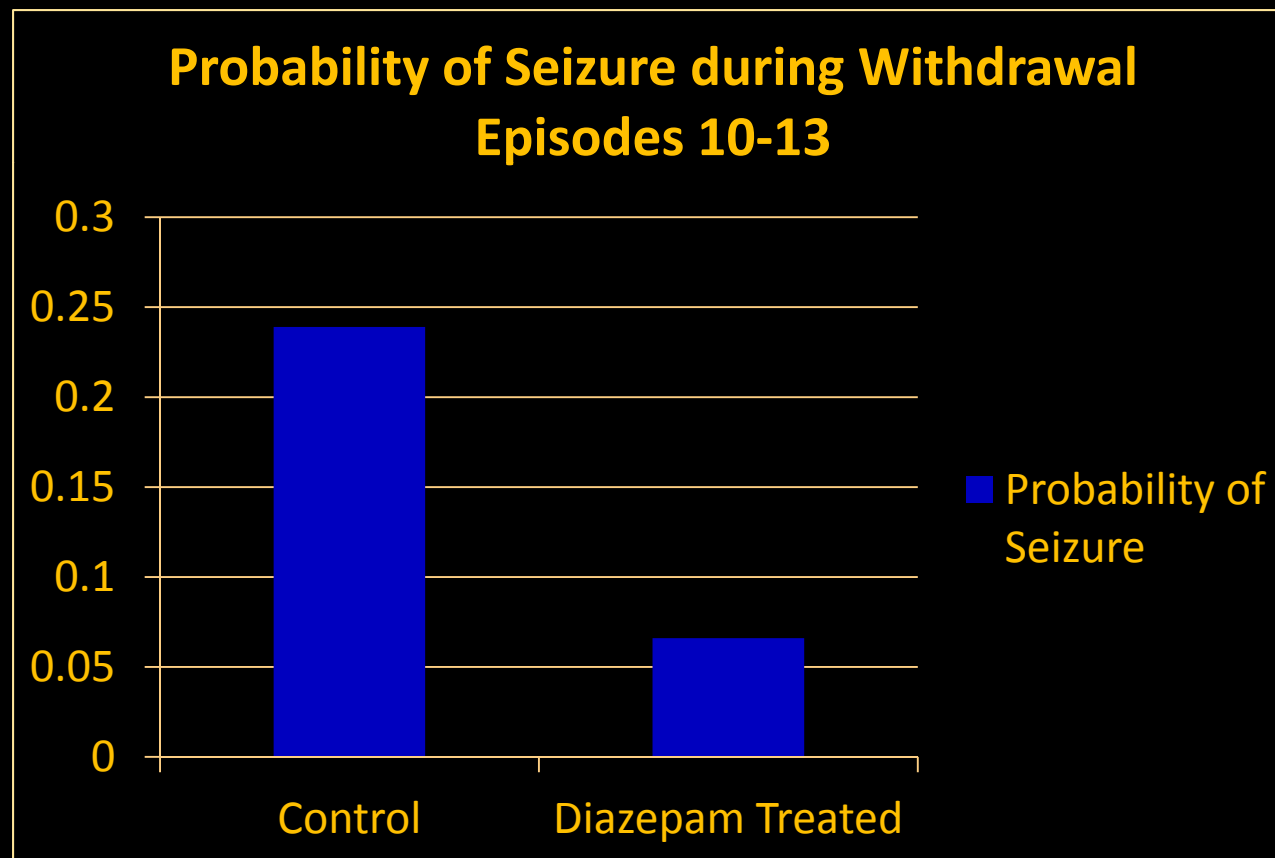
X = Intoxication x 2 days

- = withdrawal x 5 days

- = withdrawal x 5 days (Treated with Diazepam)

Kindling

- Ulrichsen 1995: Rat study



Ulrichsen J, Bech B, Allerup P, Hemmingsen R. Diazepam prevents progression of kindled alcohol withdrawal behavior. *Psychopharmacology*. 1995;121(4):451-460.

Kindling

- Risk of severe withdrawal:
 - Hx seizures
...risk doubles (46% vs 20%)
 - Hx > 4 prior withdrawal episodes
...risk > triples (59% vs 17%)

Front-Loading

- Examples:

- Diazepam 20 mg PO Q1 hr

- Diazepam 20 mg IV Q10 min

...until AWS controlled or patient lightly sedated

- First described by:

Addiction Research Foundation Clinical Institute

-Toronto

-used Barbiturates, and then Diazepam

Front-Loading

- Long acting benzodiazepine preferred
(self taper)
- Advantages:
 - Rapidly controls withdrawal symptoms
 - Less risk of drug-seeking behavior
 - Can be used if history of prior seizures
 - Can be used in critically ill
 - Prevents kindling

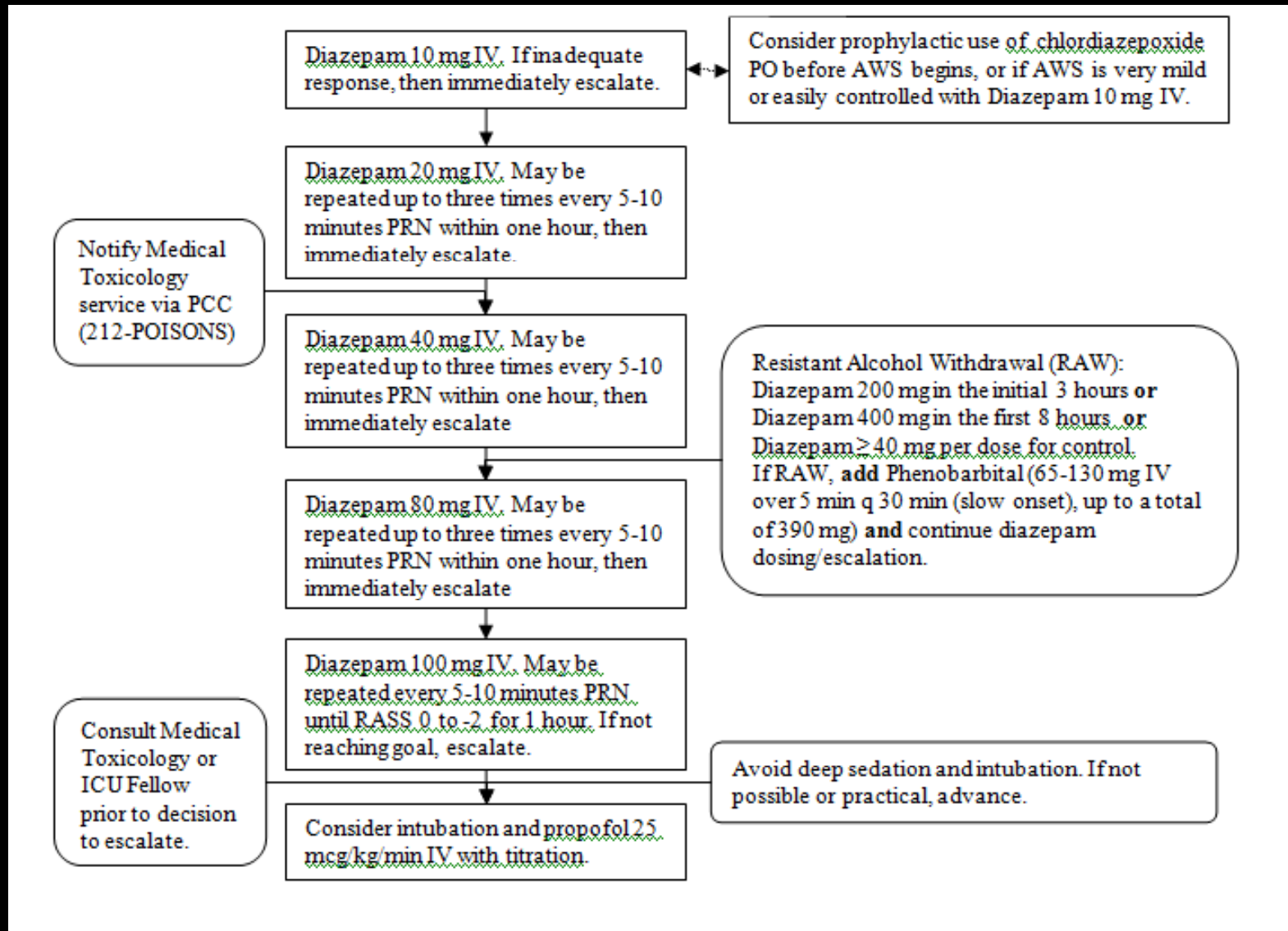
Front-Loading

- Gold (2007)
 - 95 Subjects
 - Retrospective
 - Evaluated:
 - Intermittent bolus diazepam (pre-guideline)
 - Escalating doses of diazepam (post-guideline)
 - Critically ill AWS
 - Post-guideline: Front loaded based on a symptom scale and sedation scale
 - Phenobarbital or Propofol if resistant to massive doses of benzodiazepines

Gold J, Rimal B, Nolan A, Nelson L. A strategy of escalating doses of benzodiazepines and phenobarbital administration reduces the need for mechanical ventilation in delirium tremens. *Critical Care Med.* 2007;35(3):724-730.

Front-Loading

Bellevue Protocol (Lewis Nelson, MD)



Front-Loading

Bellevue Protocol

(Lewis Nelson, MD)

- Control patient's behavior for 1 hour at RASS 0 to -2

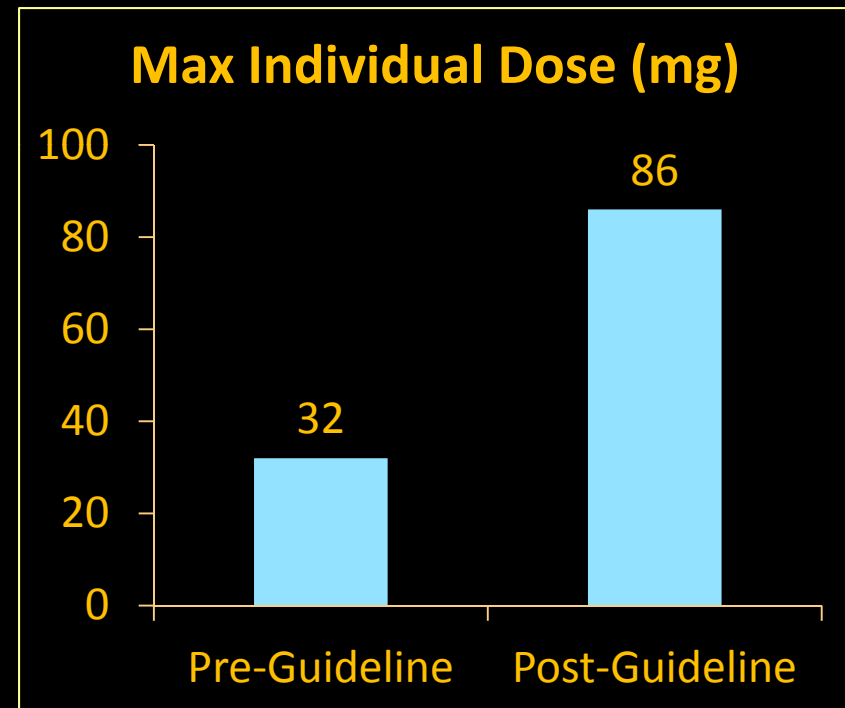
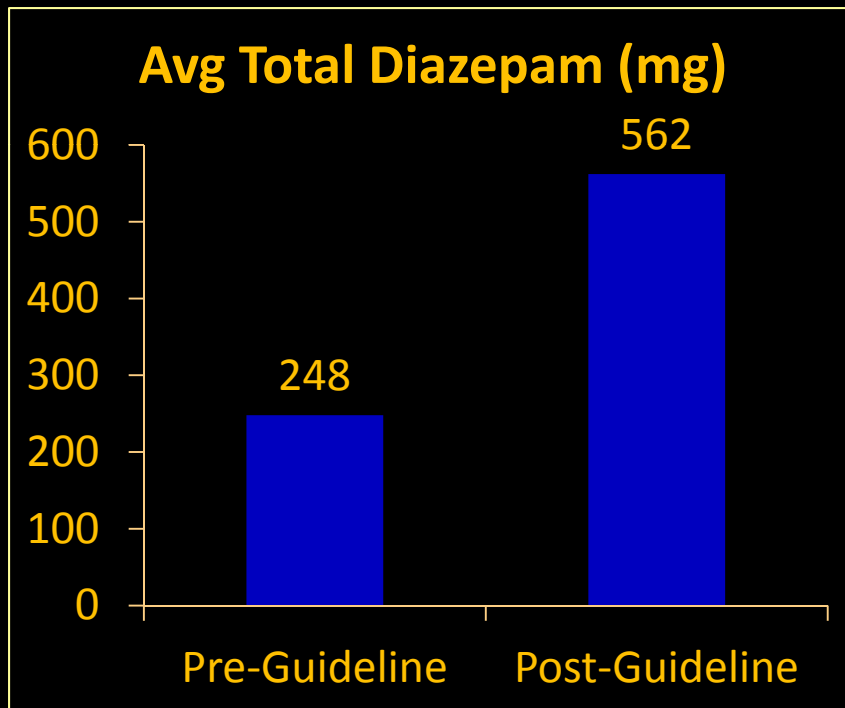
*) Richmond Agitation Sedation Scale

| Score | Term | Description |
|-------|-------------------|--|
| +4 | Combative | Overtly combative, violent, immediate danger to staff |
| +3 | Very agitated | Pulls or removes tube(s) or catheter(s); aggressive |
| +2 | Agitated | Frequent non-purposeful movement, fights ventilator |
| +1 | Restless | Anxious, apprehensive, but movements not aggressive |
| 0 | Alert and calm | Alert and calm |
| -1 | Drowsy | Not fully alert, but has sustained awakening (eye-opening/eye contact) to <i>voice</i> (>10 sec) |
| -2 | Light sedation | Briefly awakens with eye contact to <i>voice</i> (<10 sec) |
| -3 | Moderate sedation | Movement or eye opening to <i>voice</i> (but no eye contact) |
| -4 | Deep sedation | No response to <i>voice</i> , but movement or eye opening to <i>physical</i> stimulation |
| -5 | Unarousable | No response to <i>voice or physical</i> stimulation |

Ely EW, Truman B, Shintani A, Thomason JWW, Wheeler AP, Gordon S et al. Monitoring sedation status over time in ICU patients: the reliability and validity of the Richmond Agitation Sedation Scale (RASS). JAMA 2003; 289:2983-2991.

Front-Loading

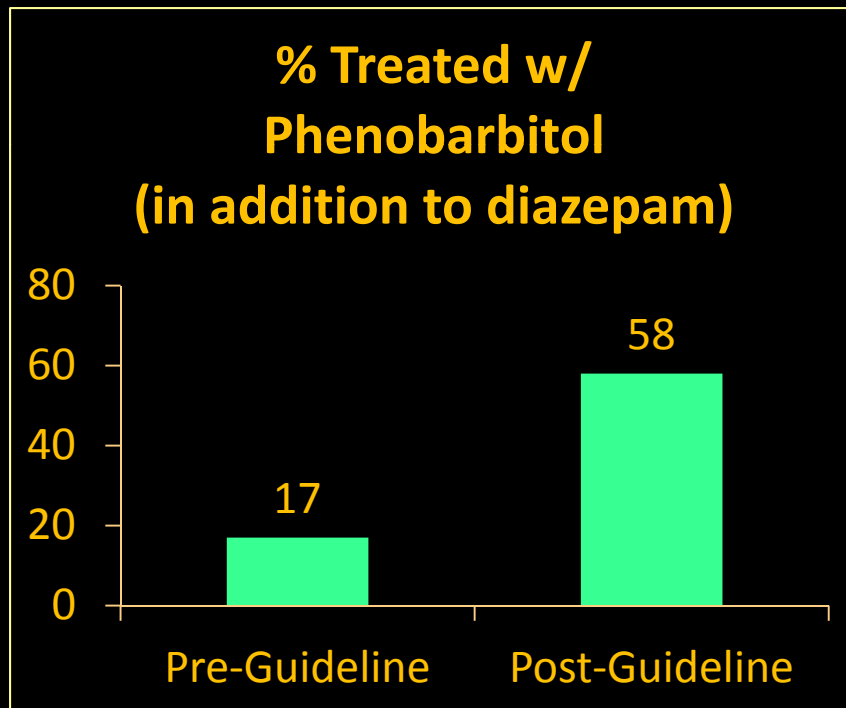
Gold (2007)



Gold J, Rimal B, Nolan A, Nelson L. A strategy of escalating doses of benzodiazepines and phenobarbital administration reduces the need for mechanical ventilation in delirium tremens. *Critical Care Med.* 2007;35(3):724-730.

Front-Loading

Gold (2007)

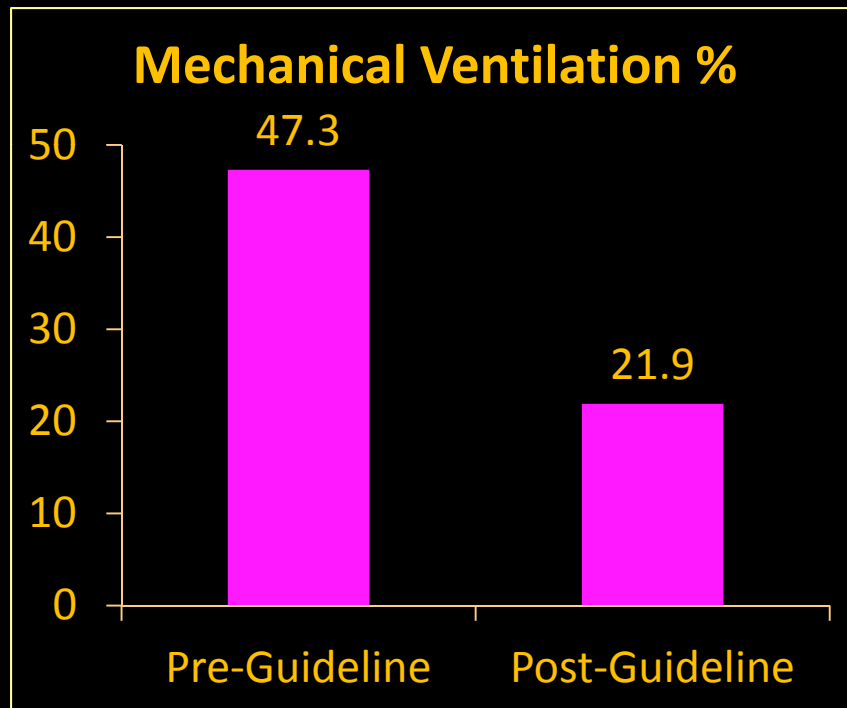


- Propofol – primary sedative in intubated patients (in addition to diazepam)

Gold J, Rimal B, Nolan A, Nelson L. A strategy of escalating doses of benzodiazepines and phenobarbital administration reduces the need for mechanical ventilation in delirium tremens. *Critical Care Med.* 2007;35(3):724-730.

Front-Loading

Gold (2007)

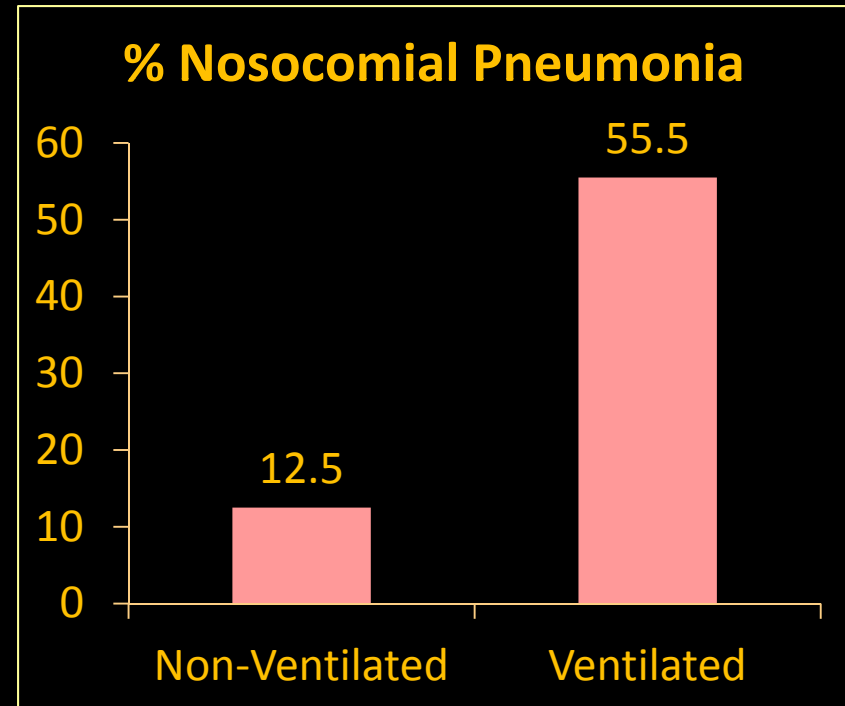
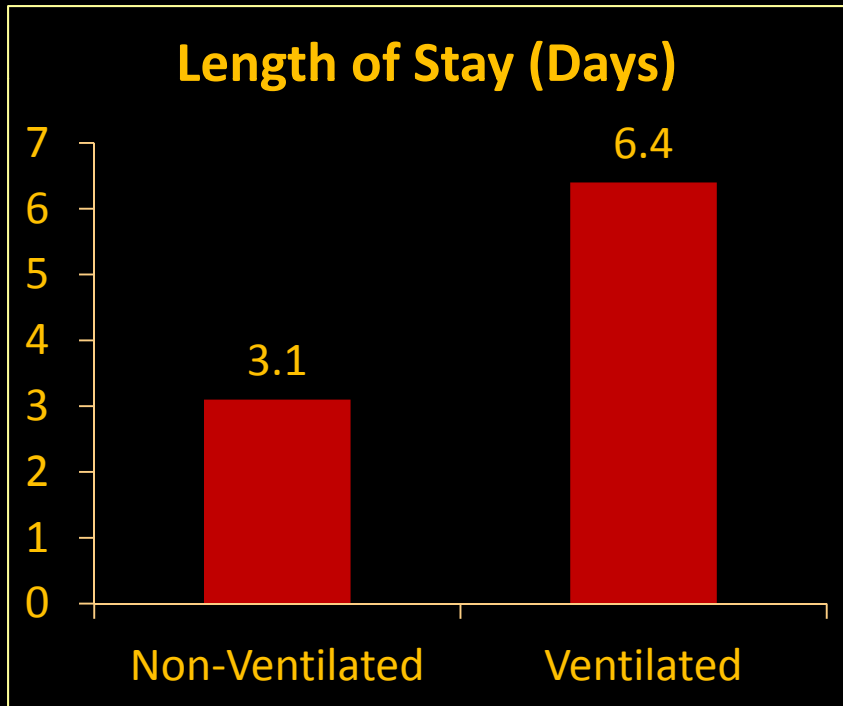


- Intubated for inability to control severe agitation
- Only 1 subject intubated for oversedation

Gold J, Rimal B, Nolan A, Nelson L. A strategy of escalating doses of benzodiazepines and phenobarbital administration reduces the need for mechanical ventilation in delirium tremens. *Critical Care Med.* 2007;35(3):724-730.

Front-Loading

- Gold (2007)
Post-Guideline



Gold J, Rimal B, Nolan A, Nelson L. A strategy of escalating doses of benzodiazepines and phenobarbital administration reduces the need for mechanical ventilation in delirium tremens. *Critical Care Med.* 2007;35(3):724-730.

Ativan Drips

- NOT Front-Loading
- Why they're bad:
 - Over-sedation → ventilator → pneumonia
 - Often no assessment b/w dosing intervals
 - Increased risk of delirium 2/2 toxic benzo doses
 - Increased length of stay
 - Increased risk of debility due to prolonged sedation & bed rest
 - Increased cost (\$50,335 for 25 hr midazolam)

Ativan Drips

- Propylene glycol toxicity:
 - Diluent
 - IV form of Lorazepam
 - Risk of toxicity when infusion rate > 6 mg/hr
 - Assoc w/: Lactic Acidosis
 - Osmolar gap
 - Renal Failure

Symptom-Triggered

- **Definition:**
 - Meds given when symptoms exceed a threshold
 - Different doses depending on degree of symptoms
- **It is not:**
 - Informal PRN orders:
Diazepam 10 mg PO Q4 hr PRN for “EtOH withdrawal”
- **Not recommended alone for seizures**

Symptom-Triggered

- **Gross et al. 1973**
 - TSA (Total Severity Assessment)
 - 30 variables
 - SSA (Selected Severity Assessment)
 - 11 variables
- **Most Scales:**
 - Developed/tested in detox units
 - Extremely detailed
 - Burdensome to nursing staff
 - Poorly validated

Symptom-Triggered

- **CIWA-A** (Clinical Institute Withdrawal Assessment for Alcohol)
 - 1981
 - Addiction Research Foundation Clinical Institute (Toronto)
 - Research tool...quantify severity of withdrawal
 - Validated by comparing nursing & physician scores
- **CIWA-A**
 - 1988. Foy et al.
 - Could be used to guide pharmacologic treatment
- **CIWA-Ar** (Clinical Institute Withdrawal Assessment for Alcohol)
 - 1989
 - 10 signs/symptoms (**No vital signs**)

CIWA-Ar

Max Score = 67

Sullivan J. et al.
Assessment of alcohol
withdrawal: the revised
clinical institute withdrawal
assessment for alcohol
scale. British Journal of
Addiction. 1989;84:1353-
1357.

NAUSEA AND VOMITING — Ask "Do you feel sick to your stomach? Have you vomited?" Observation.

- 0 no nausea and no vomiting
- 1 mild nausea with no vomiting
- 2
- 3
- 4 intermittent nausea with dry heaves
- 5
- 6
- 7 constant nausea, frequent dry heaves and vomiting

TREMOR — Arms extended and fingers spread apart. Observation.

- 0 no tremor
- 1 not visible, but can be felt fingertip to fingertip
- 2
- 3
- 4 moderate, with patient's arms extended
- 5
- 6
- 7 severe, even with arms not extended

PAROXYSMAL SWEATS — Observation.

- 0 no sweat visible
- 1 barely perceptible sweating, palms moist
- 2
- 3
- 4 beads of sweat obvious on forehead
- 5
- 6
- 7 drenching sweats

ANXIETY — Ask "Do you feel nervous?" Observation.

- 0 no anxiety at ease
- 1 mild anxious
- 2
- 3
- 4 moderately anxious, or guarded, so anxiety is inferred
- 5
- 6
- 7 equivalent to acute panic states as seen in severe delirium or acute schizophrenic reactions

AGITATION — Observation.

- 0 normal activity
- 1 somewhat more than normal activity
- 2
- 3
- 4 moderately fidgety and restless
- 5
- 6
- 7 paces back and forth during most of the interview, or constantly thrashes about

TACTILE DISTURBANCES — Ask "Have you any itching, pins and needles sensations, any burning, any numbness, or do you feel bugs crawling on or under your skin?" Observation.

- 0 none
- 1 very mild itching, pins and needles, burning or numbness
- 2 mild itching, pins and needles, burning or numbness
- 3 moderate itching, pins and needles, burning or numbness
- 4 moderately severe hallucinations
- 5 severe hallucinations
- 6 extremely severe hallucinations
- 7 continuous hallucinations

AUDITORY DISTURBANCES — Ask "Are you more aware of sounds around you? Are they harsh? Do they frighten you? Are you hearing anything that is disturbing to you? Are you hearing things you know are not there?" Observation.

- 0 not present
- 1 very mild harshness or ability to frighten
- 2 mild harshness or ability to frighten
- 3 moderate harshness or ability to frighten
- 4 moderately severe hallucinations
- 5 severe hallucinations
- 6 extremely severe hallucinations
- 7 continuous hallucinations

VISUAL DISTURBANCES — Ask "Does the light appear to be too bright? Is its color different? Does it hurt your eyes? Are you seeing anything that is disturbing to you? Are you seeing things you know are not there?" Observation.

- 0 not present
- 1 very mild sensitivity
- 2 mild sensitivity
- 3 moderate sensitivity
- 4 moderately severe hallucinations
- 5 severe hallucinations
- 6 extremely severe hallucinations
- 7 continuous hallucinations

HEADACHE, FULLNESS IN HEAD — Ask "Does your head feel different? Does it feel like there is a band around your head?"

- 0 no present
- 1 very mild
- 2 mild
- 3 moderate
- 4 moderately severe
- 5 severe
- 6 very severe
- 7 extremely severe

ORIENTATION AND CLOUDING OF SENSORIUM — Ask "What day is this? Where are you? Who am I?"

- 0 oriented and can do serial additions
- 1 cannot do serial additions or is uncertain about date
- 2 disoriented for date by no more than 2 calendar days
- 3 disoriented for date by more than 2 calendar days
- 4 disoriented for place/person

Symptom-Triggered

CIWA-Ar

- Nausea/vomiting
- Tremor
- Paroxysmal Sweats
- Anxiety
- Agitation
- Headache, Fullness in head
- Tactile Disturbances
- Auditory Disturbances
- Visual Disturbances
- Orientation & Clouding of Sensorium

Symptom-Triggered

- **CIWA-Ar Example:**
 - Assess CIWA-Ar Q2 hour
 - Chlordiazepoxide 50 mg for CIWA-Ar \geq 10
 - When CIWA-Ar $<$ 10, reassess Q4 hour

Symptom-Triggered

- 4 CIWA-Ar studies:
 - Saitz 1994
 - Daepfen 2002
 - Jaeger 2001
 - Weaver 2006

Symptom-Triggered

- Saitz 1994

- Chlordiazepoxide Fixed taper Q6 hr x 12 doses
AND Chlordiazepoxide Q1hr if CIWA-Ar > 8
 - Placebo Fixed taper Q6 hr x 12 doses
AND Chlordiazepoxide Q1hr if CIWA-Ar > 8
- 101 patients
 - Randomized, double blind controlled
 - Inpatient detox unit

Symptom-Triggered

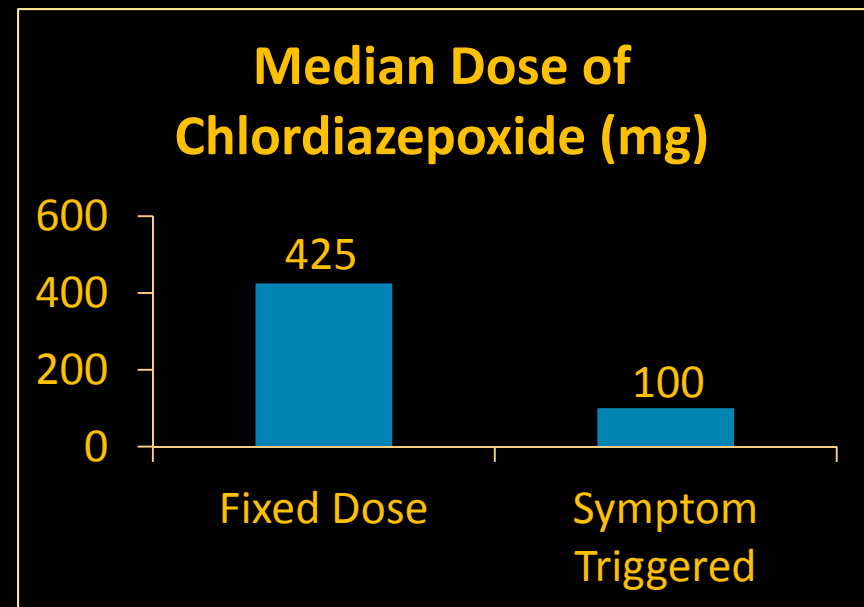
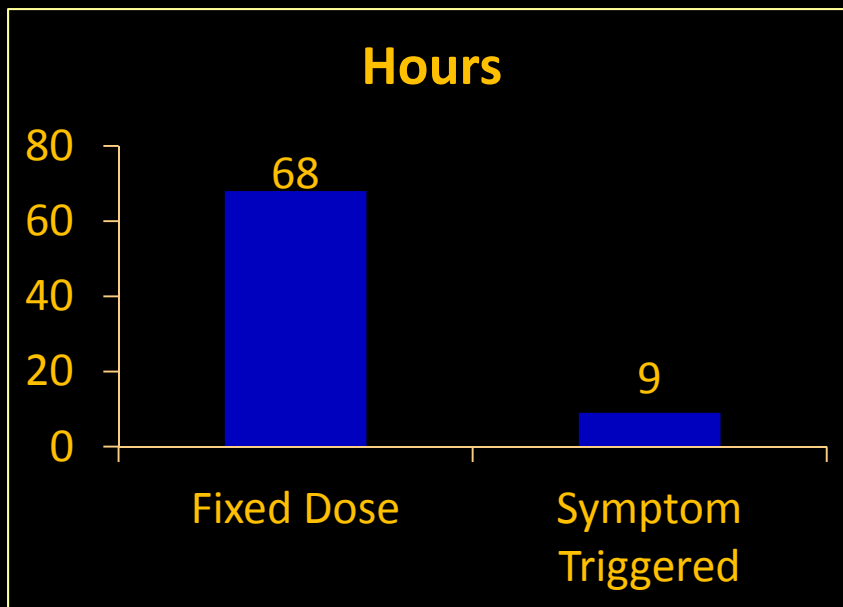
- Saitz 1994
 - Exclusions:
 - History of seizures
 - Medical or Psychiatric illness requiring hospitalization
 - Unable to take oral meds
 - Current use or withdrawal of other drugs
 - Subjects that developed DTs:
 - Transferred to ICU (subsequent care not in study)
 - < 30% had prior history DTs or Hallucinations

Saitz R, Mayo-Smith M, Roberts M. et al. Individualized treatment for alcohol withdrawal.
JAMA.1994;272(7):519-523.

Symptom-Triggered

- Saitz 1994

- Similar efficacy in reducing alcohol withdrawal symptoms



Saitz R, Mayo-Smith M, Roberts M, et al. Individualized treatment for alcohol withdrawal. *JAMA*. 1994;272(7):519-523.

Symptom-Triggered

- Daepfen 2002

- Oxazepam Fixed taper Q6 hr x 12 doses AND Oxazepam Q30 min if CIWA-Ar > 8
- Placebo Fixed taper Q6 hr x 12 doses AND Oxazepam Q30 min if CIWA-Ar > 8

- 117 patients
- Randomized, double blind controlled
- 12 bed alcohol inpatient treatment program

Daepfen J-B, Gache P, Landry U, et al. Symptom-Triggered vs Fixed-Schedule doses of benzodiazepine for Alcohol Withdrawal. *Arch Intern Med.* 2002;162:1117-1121.

Symptom-Triggered

- **Daepfen 2002**

- **Exclusions:**

- Last EtOH drink > 72 hours prior
- Daily use of meds to treat EtOH w/d in prior 1 month
- Major cognitive, psychiatric or medical comorbidity
- Opiate or stimulant dependency

- **< 20% had prior history DTs or Seizure**

- **Withdrawal Complications:**

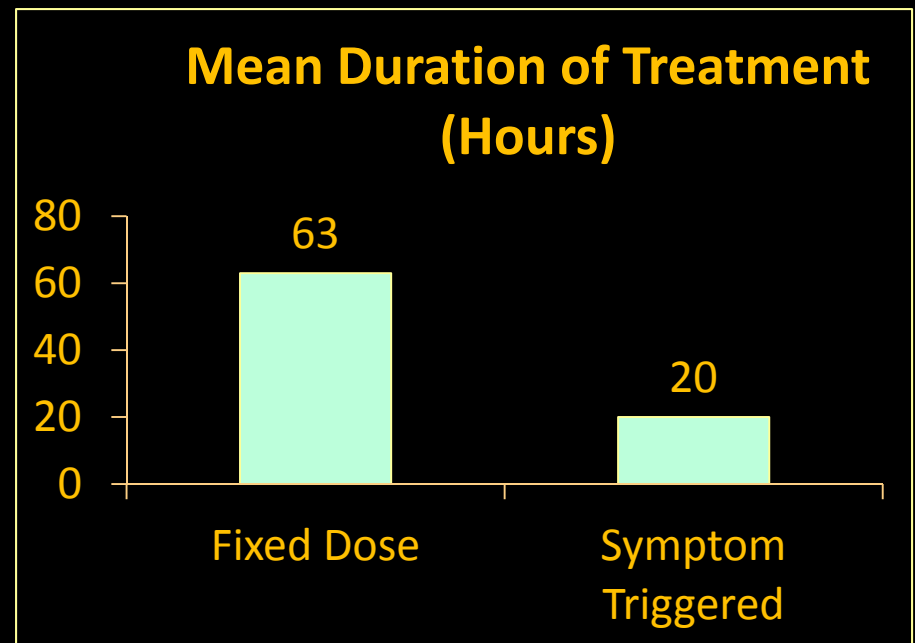
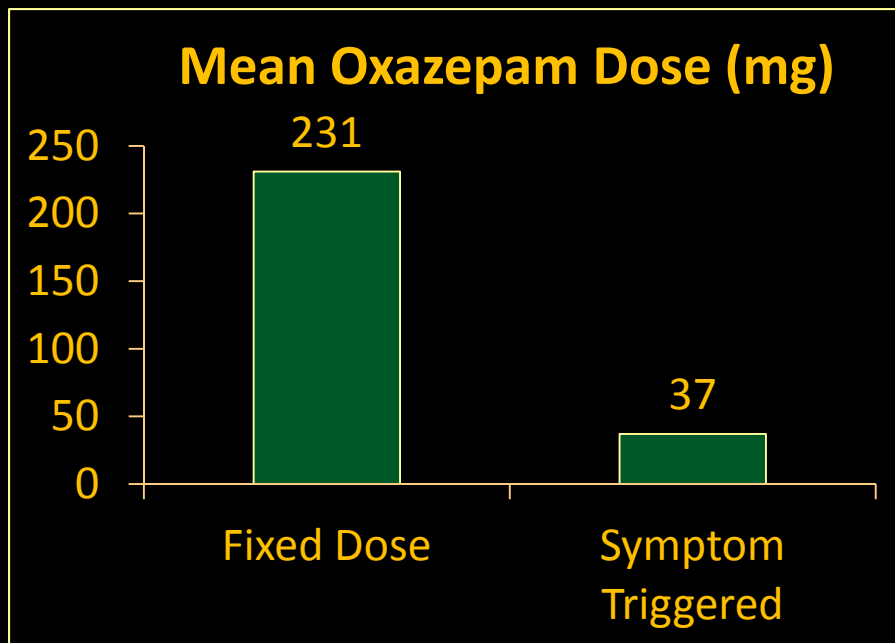
| | Seizures | Delirium Tremens | Hallucinations |
|--------------------------|-----------------|-------------------------|-----------------------|
| Fixed-Dose | 0 | 0 | 0 |
| Symptom-Triggered | 1 | 0 | 0 |

Daepfen J-B, Gache P, Landry U, et al. Symptom-Triggered vs Fixed-Schedule doses of benzodiazepine for Alcohol Withdrawal. *Arch Intern Med.* 2002;162:1117-1121.

Symptom-Triggered

- **Daepfen 2002**

- Required Treatment: 100% Fixed-Schedule
39% Symptom-Triggered



Daepfen J-B, Gache P, Landry U, et al. Symptom-Triggered vs Fixed-Schedule doses of benzodiazepine for Alcohol Withdrawal. *Arch Intern Med.* 2002;162:1117-1121.

Symptom-Triggered

- Jaeger 2001
 - Retrospective, Mayo Clinic
 - CIWA-Ar vs Prior Usual Care
 - Prior Usual Care = fixed dose protocol or PRN based on discretion of staff
 - Nurses trained in CIWA
 - Exclusions:
 - Hx seizures
 - Patients admitted to ICU

Symptom-Triggered

- Jaeger 2001
 - No difference in Length of Treatment
 - Decreased risk of DT with CIWA-Ar

Symptom-Triggered

- **Weaver 2006**
 - **Goal:** evaluate comorbid medical illness
 - Lorazepam Fixed taper x 4 days
AND Lorazepam Q1 hour if CIWA-Ar > 30
 - Lorazepam Q 4 hour if CIWA-Ar > 6 (Q1 hr if > 30)
 - 183 patients
 - Hospital general medical floors
 - Quasi-randomized by nursing floor

Symptom-Triggered

- **Weaver 2006**
 - **Most common comorbid diagnoses:**
 - Pancreatitis, pneumonia, cellulitis, GI bleed, chest pain
 -but not clear what % of overall patients or the % in each treatment arm had a comorbid illness
 - **Exclusions:**
 - Confusion
 - Chronic sedative-hypnotics
 - Patients admitted to ICU

Weaver M, Hoffman H, Johnson R, et al. Alcohol withdrawal pharmacotherapy for inpatients with medical comorbidity. *Journal of Addictive Diseases*. 2006;24(2):17-24.

Symptom-Triggered

- Weaver 2006
 - Symptom-triggered:
 - Required less overall dose of medication
 - Incurred twice as many protocol errors
 - Frequency of assessments
 - Dispensing incorrect lorazepam dose based on CIWA-Ar
 - Giving scheduled lorazepam in addition to symptom-triggered

Symptom-Triggered

- **CIWA-Ar**
 - Never been compared to another symptom-triggered scale
 - No standardization of a drug dose to the scale
 - No standardization of nursing assessment frequency
 - Very limited studies in medical/trauma pts
 - Most studies include mild-moderate withdrawal
 - Usually patients excluded if active withdrawal
 - Often patients excluded if history seizures

Symptom-Triggered

- **SEWS: Severity of Ethanol Withdrawal Scale**

Thomas Beresford, MD @ VA

- Goal to treat early withdrawal
- Bimodal (Yes/No)
- Includes vital signs
- Does not include "Headache"

SEWS Thomas Beresford, MD

| Severity of Ethanol Withdrawal Scale | YES | SCORE |
|--|-------------|-------|
| <u>ANXIETY</u> (Do you feel that something bad is about to happen to you right now)? | 3 | |
| <u>NAUSEA and DRY HEAVES or VOMITING?</u> | 3 | |
| <u>SWEATING</u> (includes moist palms, sweating now)? | 2 | |
| <u>TREMOR</u> (with arms extended, eyes closed)? | 2 | |
| <u>AGITATION</u> (fidgety, restless, pacing)? | 3 | |
| <u>ORIENTATION?</u> Name, place & date: All three Any two only Any one only | 0 1 3 | |
| <u>HALLUCINATIONS</u> (visual, tactile, olfactory, or gustatory)? | 3 | |
| <u>VITAL SIGNS?</u> ANY of the following Pulse > 110 Diastolic BP > 90 Temp > 99.6 | 3 | |
| TOTAL SCORE = | | |
| TOTAL SCORE < 6: Lower risk for withdrawal TOTAL SCORE = or > 6: Higher risk | | |

Conclusions:

- **Benzodiazepines:** most evidence & clinical practice
- **In the ICU consider (in addition to Benzo):**
 - Propofol
 - Barbiturates
 - ? Dexmedetomidine
- **? If Mask Withdrawal using:**
 - Beta-Blockers
 - Clonidine
 - ? Dexmedetomidine
- **Antipsychotics:** Lower seizure threshold
- **Promising:** Balcofen & Carbamazepine

Conclusions:

- Fixed-Schedule dosing should be limited
- Front-Loading promising
- Symptom-Triggered has:
 - decreased duration of detox
 - Reduced total dose of benzodiazepine
 - 60% of patients require no medications!
 - Current gold standard CIWA-Ar is inadequate
 - No vital signs
 - Headache?
 - Burdensome for nurses & extremely detailed
 - SEWS