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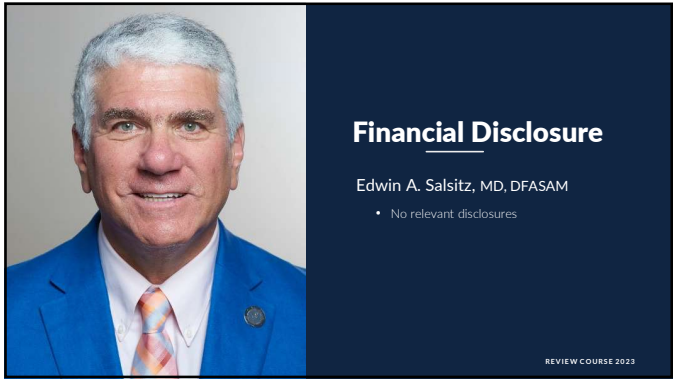
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**Patient 1: 64-year-old Female**

- Admitted to rehab for treatment of AUD following a "detox" protocol. MMTP 60mg for many years- OUD in Remission
- Married: Spouse no SUD
- F: +EtOH M: No EtOH 4S: No EtOH 2Children: No EtOH
- HS Graduate: Employed in Sales
- Social, Occasional EtOH until age 56
- ? Event → ↑↑ EtOH one year after event → AUD
- PE: unremarkable
- Labs: Normal CMP, CBC, Lipids
- UDT: + Methadone

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**What was the event?**

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**Bariatric Surgery**

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### 64-year-old Female with AUD

- Age 56: Bariatric Surgery: 5' 4" 240lbs. BMI= 41
- ? Type of Bariatric Surgery?
- ? RYBS, SG, LAGB
- SG
- Current BMI: 24
- 2 liters Vodka day

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#### RYGB

#### SG

#### LAGB

Roux-en-Y, is an end-to-side surgical anastomosis of bowel used to reconstruct the gastrointestinal tract. The name is derived from the surgeon who first described it César Roux and the stick-figure representation.

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#### Impaired Alcohol Metabolism after Gastric Bypass Surgery: A Case-Crossover Trial

Gavin A Woodard, BS, John Downey, MD, Tina Hernandez-Boussard, PhD, MPH, John M Morton, MD, MPH, FACS  
J Am Coll Surg 2011;212:209-214

Time after drinking (min)	Pre-op BMI 49	3m BMI 40	6m BMI 36
0	0.00	0.00	0.00
15	0.01	0.02	0.03
30	0.02	0.04	0.08
45	0.01	0.03	0.06
60	0.00	0.01	0.03
75	0.00	0.00	0.01
90	0.00	0.00	0.00
105	0.00	0.00	0.00
120	0.00	0.00	0.00
135	0.00	0.00	0.00
150	0.00	0.00	0.00
165	0.00	0.00	0.00

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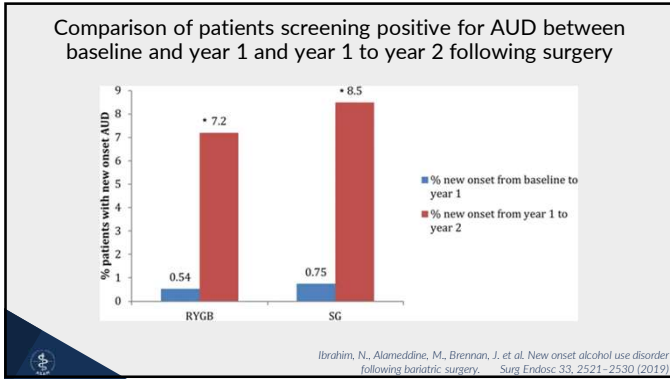
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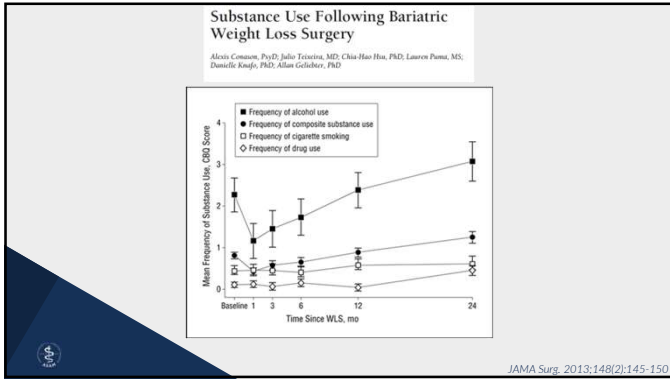
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### Addiction Transfer/Substitution

- Why the ~ 2-year delay?
- Why procedure-dependent?
- Occurs In Patients with Gastrectomy for peptic ulcer and CA with nl BMI
- Rodent Model: ↑EtOH after RYGB

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**Pharmacokinetics/Pharmacodynamics**

- Explains Difference RYGB, SG, LAGB
- ↓ Gastric ADH (Cimetidine H2 Blocker)
- ↓ Weight → ↑ Socialization
- ↑ Absorption, ↑ Cmax, earlier Tmax
- Feeling More Intoxicated
- AUD >> Other SUDs
- Cocaine Analogy: I.N. → Smoked (Crack Cocaine)

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**Predictors of AUD Post WLS**

- Type of Weight Loss Surgery
- Male: Women More WLS
- Younger Age, FH
- EtOH use Pre-Op
- Tobacco, Illicit Drug Use
- ADHD
- Lower Sense of Belonging, Depression
- More Weight Loss → ↑ Socialization → ↑ EtOH

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**Key Takeaways**

- New Onset EtOH related problems occur in ~ 10% of WLS Pts.
- More likely with RYGB & SG than with LAGB.
- Some WLS patients ↓ EtOH intake.
- EtOH problems increase over time. Usually begins ~2 years after WLS.
- Inform and Monitor all WLS patients about the risk of AUD/SUD over time.
- Special Thanks to Allan Geliebter PhD, for alerting me to the relationship between Bariatric Surgery and Alcohol

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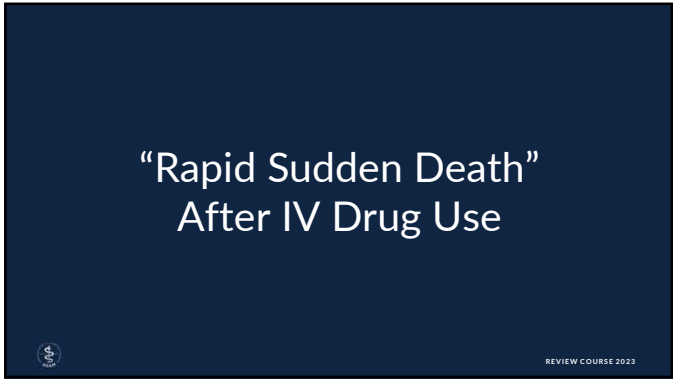
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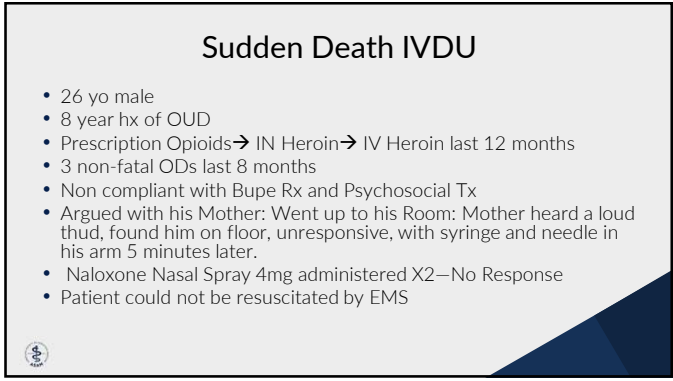
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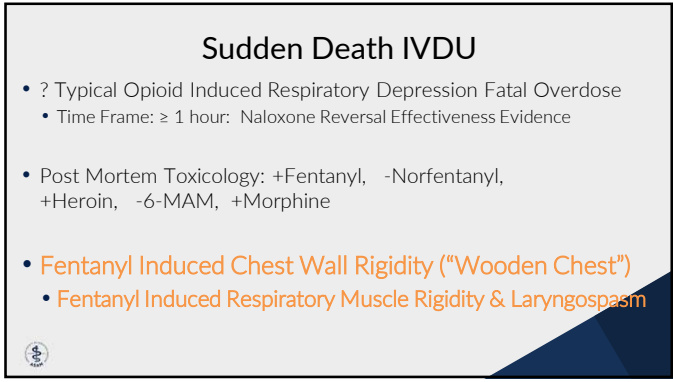
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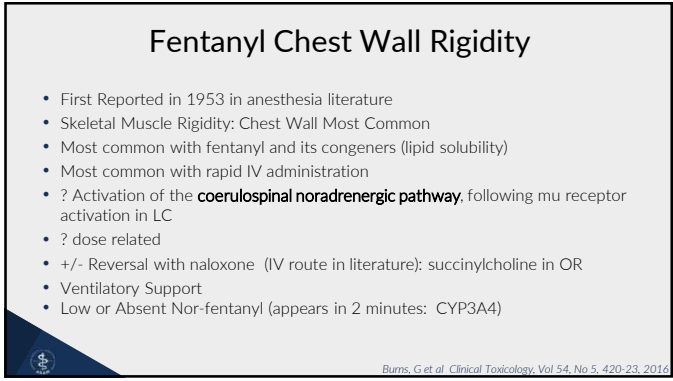
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100 Accidental OD deaths  
2017:  
99% + FENTANYL  
Only 3 cases + HEROIN  
  
64% + Nor-fentanyl<sup>2</sup> 3A4

Synthetic opioids/fentanyl analogues/metabolites	A. All cases (N=100)	B. Acetyl Fentanyl Positives (N=52)	C. Furanyl Fentanyl Positives (N=22)
Fentanyl	99 (99%)	56 (100%)	39 (100%)
Norfentanyl	64 (64%)	39 (70%)	26 (67%)
Acetyl fentanyl	36 (36%)	28 (46%)	25 (64%)
Despropionyl fentanyl	48 (48%)	29 (46%)	32 (67%)
Furanyl fentanyl	39 (39%)	25 (45%)	
Carfentanil	3 (3%)	2 (4%)	1 (2.6%)
Acetyl fentanyl	2 (2%)	1 (2%)	1 (2.6%)
Butyrylisobutyrylfentanyl	1 (1%)	0 (0%)	0 (0%)
Furanyl norfentanyl	1 (1%)	1 (2%)	1 (2.6%)
U47700	1 (1%)	1 (2%)	1 (2.6%)

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### Fentanyl-Induced Chest Wall Rigidity

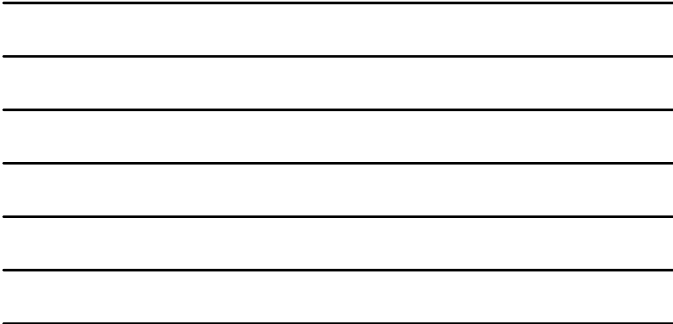
Basak Çoruk, MD, Mark R. Tonelli, MD, and David R. Park, MD

Fentanyl and other opiates used in procedural sedation and analgesia are associated with several well-known complications. We report the case of a man who developed the uncommon complication of chest wall rigidity and ineffective spontaneous ventilation following the administration of fentanyl during an elective bronchoscopy. His ventilation was assisted and the condition was reversed with naloxone. Although this complication is better described in pediatric patients and with anesthetic doses, chest wall rigidity can occur with analgesic doses of fentanyl and related compounds. Management includes ventilatory support and reversal with either naloxone or a short-acting neuromuscular blocking agent. This reaction does not appear to be a contraindication to future use of fentanyl or related compounds. Chest wall rigidity causing respiratory compromise should be readily recognized and treated by bronchoscopes.

CHEST 2013; 143(4):1145-1146

**High levels of fentanyl but not norfentanyl = rapid death onset, and is associated with acute chest rigidity**  
**42% No Nor-Fentanyl 20/48 cases**

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### Cerulospinal Pathway

Activation of NE via GABA inhibition increases muscle tone

Courtesy Dr. Ferland

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**Putative mechanism 1:**  
mu activation on GABAergic interneurons inhibits their activity, leading to disinhibition of the LC

**Continuous activation of LC leads hyper contraction of the cell wall**

Courtesy Dr. Ferland

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**Putative mechanism 2:**  
fentanyl has been shown to block reuptake of NE

**Importantly, naloxone does not affect this mechanism**

Courtesy Dr. Ferland

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### False Positive Fentanyl Immunoassay

- Trazodone
- Risperidone, Paliperidone, Iloperidone
- Some of the Fentanyl Analogues
- Not Norfentanyl
- Diphenhydramine, Sertraline, Labetalol, Fluoxetine, MDMA, Methamphetamine, Amitriptyline

**Trazodone**

**Alkylated Piperidine in common**

Lockwood et al. Harm Reduct J (2021) 18:30  
J Addict Med 2021;15: 150-154  
Journal of Analytical Toxicology 2014;38:672-675

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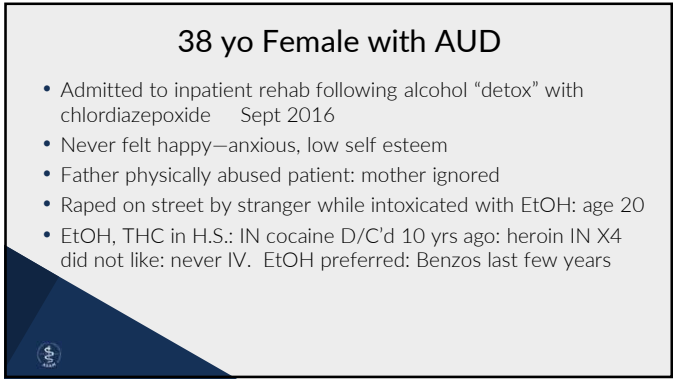
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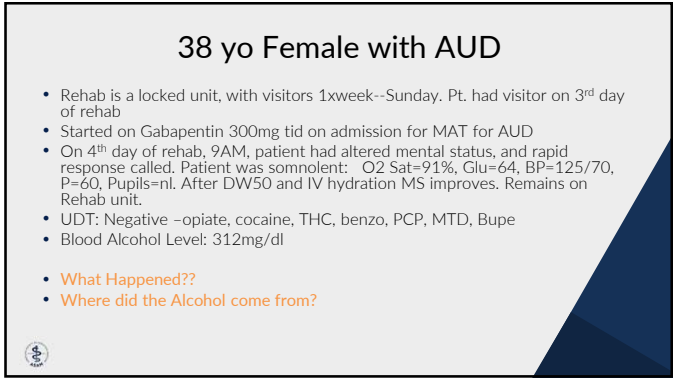
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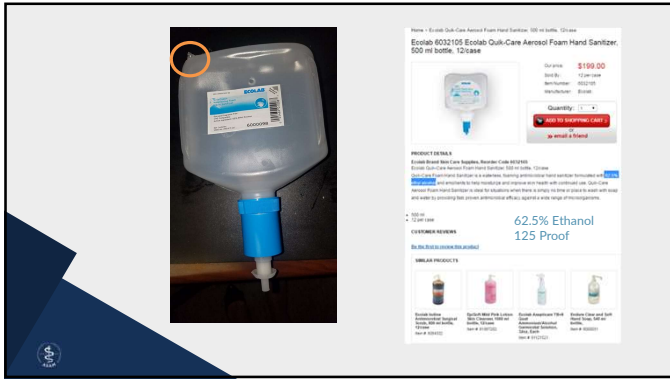
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~ 25% Alcohol  
50Proof

35% Alcohol  
70Proof

10% Alcohol  
20Proof

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### 38 yo female with AUD

- 5 year hx of drinking hand sanitizer in health care facilities; like Vodka—but stronger
- Would drink Sanitizer to alleviate withdrawal
- No hangovers
- Also drank Listerine
- Required ICU and intubation in the past

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Table 3. Case reports of unusual alcohol-hand sanitizer ingestions

Case No.	Age, Sex	Substance	History	Alcohol Ingestion	Alcohol Intoxication	Alcohol Withdrawal	Alcohol Dependence	Alcohol Abuse	Alcohol Use Disorder	Alcohol Withdrawal Syndrome	Alcohol Withdrawal Seizures	Alcohol Withdrawal Delirium	Alcohol Withdrawal Hallucinations	Alcohol Withdrawal Tremor	Alcohol Withdrawal Agitation	Alcohol Withdrawal Convulsions	Alcohol Withdrawal Death
1	38	F	Alcohol	Yes	No	No	No	No	No	No	No	No	No	No	No	No	No
2	46	M	Alcohol	Yes	No	No	No	No	No	No	No	No	No	No	No	No	No
3	38	M	Alcohol	Yes	No	No	No	No	No	No	No	No	No	No	No	No	No
4	36	M	Alcohol	Yes	No	No	No	No	No	No	No	No	No	No	No	No	No
5	35	M	Alcohol	Yes	No	No	No	No	No	No	No	No	No	No	No	No	No
6	38	M	Alcohol	Yes	No	No	No	No	No	No	No	No	No	No	No	No	No
7	38	M	Alcohol	Yes	No	No	No	No	No	No	No	No	No	No	No	No	No
8	38	M	Alcohol	Yes	No	No	No	No	No	No	No	No	No	No	No	No	No
9	38	M	Alcohol	Yes	No	No	No	No	No	No	No	No	No	No	No	No	No
10	38	M	Alcohol	Yes	No	No	No	No	No	No	No	No	No	No	No	No	No
11	38	M	Alcohol	Yes	No	No	No	No	No	No	No	No	No	No	No	No	No
12	38	M	Alcohol	Yes	No	No	No	No	No	No	No	No	No	No	No	No	No
13	38	M	Alcohol	Yes	No	No	No	No	No	No	No	No	No	No	No	No	No
14	38	M	Alcohol	Yes	No	No	No	No	No	No	No	No	No	No	No	No	No

Critical Care Medicine. 40(1):290-294, January 2012

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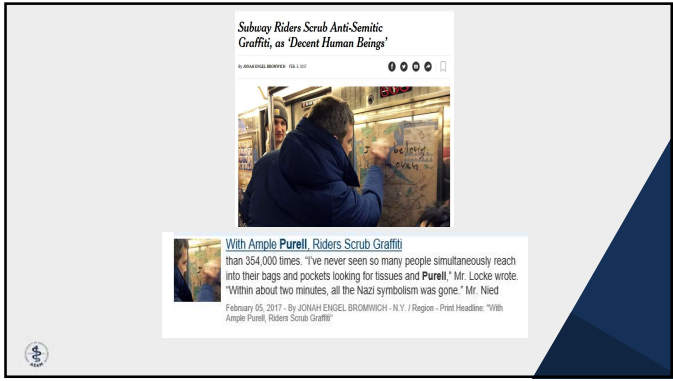
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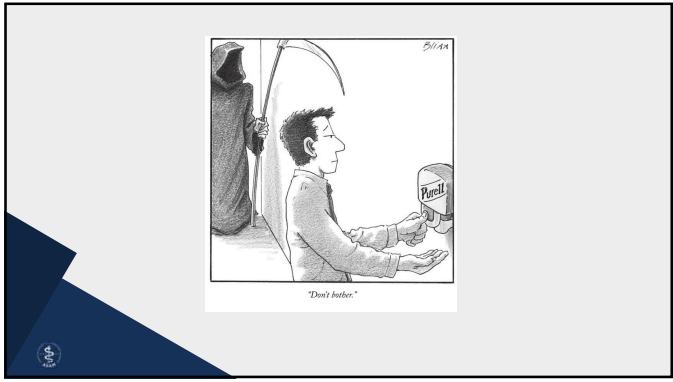
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**Get in Touch**

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www.asam.org

JULY 2023 REVIEW COURSE 2023

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