

Alcohol Problems in Emergency Department Patients

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Network, 2007 Research Colloquium





Alcohol Problems in ED Patients.

- What proportion of ED patients have alcohol or other substance problems?
- Do these patients use more hospital resources than other patients?



What documentation *suggests* that an ED patient probably has an alcohol problem?

- Drinking alcohol and having a related problem (e.g. an accident or fight)
- Presents with an alcohol level greater than the "legal limit" (17.4 mmol/L)
- "Alcoholic", "alcoholism" or similar diagnosis recorded on the chart.
- Any visit for alcohol withdrawal.



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What visits are *caused by* alcohol misuse?

- Intoxication
- Accidents occurring when intoxicated
- Medical, social or psychiatric problem related to current alcohol misuse.



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Substance Problems in ED Patients.

- 6026 visits by 5188 patients over a 6 week period.
 - 2694 males and 2494 females
 - 600 patients (11.6%) had a substance problem.
 - 15.4% of males, 7.5% of females
 - 521 visits (8.6%) by 469 patients were for a problem caused by the patient's substance use.
- Alcohol was the most common problem substance
 - 11.0% of males and 4.6% of females.
 - 370 visits (6.1%) by 338 patients were for a problem caused by the patient's alcohol use.

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Patients with alcohol problems ...

- Were younger: 40.6 vs 48.5 years
- Required admission more often: 22% vs 17.6%
- Spent more time in ED: 336 vs 242 minutes
- Had more revisits/patient during one year followup:
 - 0.66 versus 0.48
- More likely to walk out: 4.0% vs 2.6%
- More likely to leave with police: 1.4% vs 0.1%



Patients with Heroin / Cocaine problems ...



- Were younger (37.7 vs 40.6 years)
- More likely to require admission (28.6% vs 22% [NS])
- Had more revisits (0.89 vs 0.66 revisits per patient)
- Twice as likely to be in police custody: (2.6% vs 1.4%)
- Twice as likely to walk out: (7.8% vs 4.0%)



What happens to these patients after discharge?

- They have more hospital admissions and more revisits.
- What about other “events”
 - Major trauma?
 - Police encounters?
 - Mortality?



Alcohol and car crashes

- What proportion of drivers admitted to hospital following a car crash are impaired?
- How many impaired drivers are convicted?



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Alcohol and car crashes

- 1697 drivers admitted after a car crash
 - 10.6% had BAL between 0 and 17.4 mM
 - 36.5% had BAL \geq 17.4 mM (80 mg/dL)
- Of those with a positive BAL
 - mean BAL was 34 mM (~160 mg/dL)
 - highest BAL was 88.2 mM (~400 mg/dL)

Purssell et al. Proportion of injured alcohol-impaired drivers subsequently convicted of an impaired driving criminal code offence in British Columbia. Canadian Journal of Emergency Medicine. 2004;6(2):80-8

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BAL .05%-.06%: You feel warm and relaxed. If you're the shy type when you're sober, you lose your feelings of shyness. Your behavior may become exaggerated, making you talk louder or faster or act bolder than usual.

BAL .08%-.09%: You believe you're functioning better than you actually are. At this level, you may start to slur your speech. Your sense of balance is probably off, and your motor skills are starting to become impaired. Your ability to see and hear clearly is diminished. Your judgment is being affected, so it's difficult for you to decide whether or not to continue drinking.

BAL .10%-.12%: At this level, you feel euphoric, but you lack coordination and balance. Your motor skills are markedly impaired, as are your judgment and memory. You probably don't remember how many drinks you've had. Your emotions are exaggerated, and some people become loud, aggressive, or belligerent.

BAL .14%-.17%: You have difficulty talking, walking, or even standing. Your judgment and perception are severely impaired. You may become more aggressive, and there is an increased risk of accidentally injuring yourself or others. You may experience a blackout.

BAL .20%: You feel confused, dazed, or otherwise disoriented. You need help to stand up or walk. If you hurt yourself at this point, you probably won't realize it because you won't feel pain. If you are aware that you've injured yourself, chances are you won't do anything about it. Since blackouts are likely at this level, you may not remember any of this.

BAL .25%: All mental, physical, and sensory functions are severely impaired. You're emotionally numb. There's an increased risk of asphyxiation from choking on vomit and of seriously injuring yourself by falling or other accidents.

BAL .30%: You're in a stupor. You have little comprehension of where you are. You may suddenly pass out at this point and be difficult to awaken.

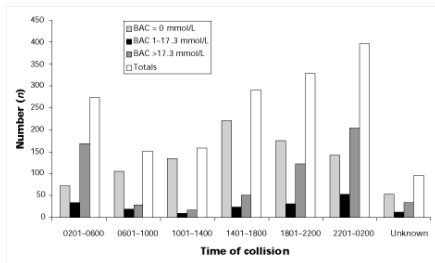
BAL .35%: This blood alcohol level also happens to be the level of surgical anesthesia. You may stop breathing at this point. The nerve centers controlling your heartbeat and respiration are slowing down completely. It's a miracle if you're not dead.

Which drivers are most likely to be impaired?



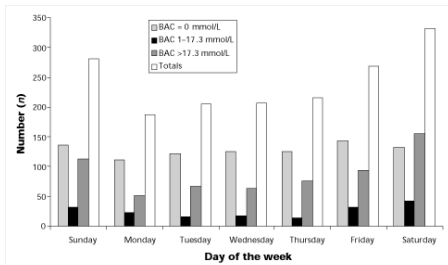
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Alcohol, MVCs and Time of Day



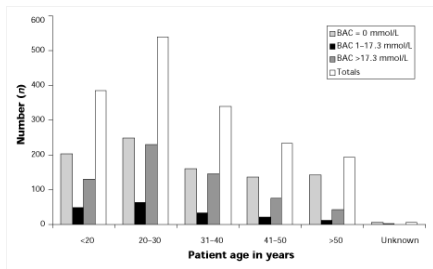
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Alcohol, MVCs and Day of Week



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Alcohol, MVCs and Driver Age



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Which drivers were impaired?

- MVCs at night (49% versus 15%)
- MVCs on weekends (41.0%)
- Age 21 – 30 years
- Single vehicle crashes (48.3% versus 24%)
- Males slightly more likely to be impaired (38% vs 31%)



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Legal outcome of hospitalized impaired drivers?

Author(s)	Year of study	Jurisdiction	No. of study subjects	Convictions, %
Mauil et al	1984	Virginia	56	0
Colquitt et al	1987	Connecticut	59	0
Soderstrom et al	1990	Maryland	58	12.1
Fantus et al	1991	Illinois	116	0
McLaughlin et al	1992	Michigan	49	59.2
Rehm et al	1993	New Jersey	87	14.0
Barillo	1993	Pennsylvania	480	40.6
Evet et al	1994	Virginia	245	3.7
Runge et al	1996	North Carolina	187	17.0
Cydulka et al	1998	Ohio	78	21.0
Krause et al	1998	Michigan	71	51.0
Mattsson et al	2000	Umea, Sweden	15	85.0

Legal outcome of hospitalized impaired drivers in BC.

Conviction outcome by contributing factors for drivers whose BAC was ≥ 17.4 mmol/L

Legal outcome	Contributing factors, no. of drivers (and %)		
	Alcohol*	Non-alcohol	Total
Criminal code conviction: impaired	47 (11.5)	2 (1.2)	49 (8.4)
Criminal code conviction: other	43 (10.5)	6 (3.5)	49 (8.4)
90-day administrative driving prohibition	22 (5.4)	0 (0.0)	22 (3.8)
24-hour roadside prohibition	50 (12.2)	2 (1.2)	52 (9.0)
Other Motor Vehicle Act contravention	115 (28.0)	55 (32.2)	170 (29.3)
No contraventions	133 (32.4)	106 (62.0)	239 (41.1)
Total	410 (100.0)	171 (100.0)	581 (100.0)

*Alcohol = Indicated that the police listed alcohol as a contributing factor.



Will injured impaired drivers drink and drive again?



Driving record of drivers who visit the hospital after a car crash?

BAL	Total numbers in groups	Impaired driving prior to index visit	Impaired driving subsequent to index visit
BAL = 0	1982	302 (15.2%)	189 (9.5%)
0 < BAL < 17.4mM	310	102 (32.9%)	70 (22.6%)
BAL ≥ 17.4 mM	1074	582 (54.2%)	344 (32.0%)



What happens to impaired passengers?



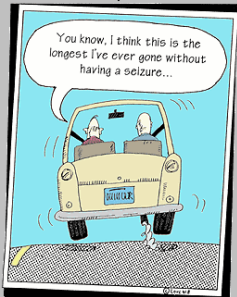
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Driving record of passengers who visit the hospital after a car crash?

BAL	Total numbers	Impaired driving prior to index visit	Impaired driving subsequent to index visit
BAL = 0	713	91 (12.8%)	78 (10.9%)
0 < BAL < 17.4mM	174	42 (24.1%)	48 (27.6%)
BAL ≥ 17.4 mM	449	180 (40.1%)	158 (35.2%)

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SNAPSHOTS by Jason Lowe



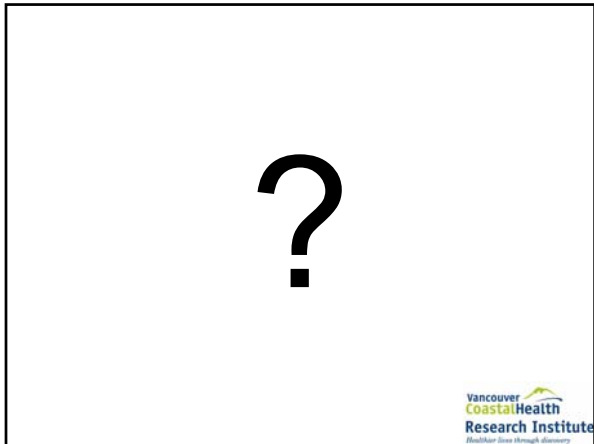
Things we don't like to hear as a passenger.

DO NOT PLEAD GUILTY BEFORE SPEAKING TO A LAWYER

You may have a defence even if your blood alcohol readings were above .08%.

Contact me now to set up a time for a free consultation.

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How do we identify ED patients with alcohol problems?

C A G E	Any substance use? (last 6 months): <input type="checkbox"/> Yes <input type="checkbox"/> No		Injection drug use? <input type="checkbox"/> Yes <input type="checkbox"/> No	
	<input type="checkbox"/> alcohol <input type="checkbox"/> cocaine <input type="checkbox"/> heroin <input type="checkbox"/> other illicit drugs <input type="checkbox"/> prescription (other than as prescribed)			
	If yes to either question above, please complete CAGE questions below:			
	Have you ever felt you ought to cut down on your drinking or drug use?		<input type="checkbox"/> Yes	<input type="checkbox"/> No
	Do you get annoyed at criticism about your drinking or drug use?		<input type="checkbox"/> Yes	<input type="checkbox"/> No
Have you ever felt guilty about your drinking or drug use?		<input type="checkbox"/> Yes	<input type="checkbox"/> No	
Do you ever take an early morning drink (eye opener) or use drugs first thing in the morning to get your day started or to eliminate the "shakes"?		<input type="checkbox"/> Yes	<input type="checkbox"/> No	

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Teachable Moment?



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Police report

CONTRIBUTING FACTORS

HUMAN CONDITION

- 16 EXTREME FATIGUE
- 19 FELL ASLEEP
- 22 ILLNESS (*POLICE COMMENTS)
- 23 SUDDEN LOSS OF CONSCIOUSNESS
- 26 PRE-EXISTING PHYSICAL DISABILITY
- 80 ABILITY IMPAIRED BY ALCOHOL**
- 81 ALCOHOL SUSPECTED**
- 82 ABILITY IMPAIRED BY DRUGS
- 83 DRUGS SUSPECTED
- 84 ABILITY IMPAIRED BY MEDICATION
- 85 DRIVER INATTENTIVE
- 86 DRIVER INTERNAL/EXTERNAL DISTRACTION
- 87 DECEASED PRIOR TO COLLISION



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