BEST EVIDENCE TOPIC REPORTS

Towards evidence based emergency medicine: best BETs from the Manchester Royal Infirmary

Edited by Simon D Carley

Best Evidence Topic reports (BETs) summarise the evidence pertaining to particular clinical questions. They are not systematic reviews, but rather contain the best (highest level) evidence that can be practically obtained by busy practising clinicians. The search strategies used to find the best evidence are reported in detail in order to allow clinicians to update searches whenever necessary. Each BET is based on a clinical scenario and ends with a clinical bottom line which indicates, in the light of the evidence found, what the reporting clinician would do if faced with the same scenario again.

The BETs published below were first reported at the Critical Appraisal Journal Club at the Manchester Royal Infirmary¹ or placed on the BestBETs website. Each BET has been constructed in the four stages that have been described elsewhere.² The BETs shown here together with those published previously and those currently under construction can be seen at <http://www.bestbets.org>.³ Four BETs are included in this issue of the journal.

- Is emergency department based brief intervention worthwhile in adults presenting with alcohol related events?
- Epinephrine in digital nerve block
- Computed tomography for small bowel obstruction
- The effect of warming local anaesthetics on pain of infiltration

1. Carley SD, Mackway-Jones K, Jones A, *et al*. Moving towards evidence based emergency medicine: use of a structured critical appraisal journal club. *J Accid Emerg Med* 1998;15:220–2.
2. Mackway-Jones K, Carley SD, Morton RJ, *et al*. The best evidence topic report: A modified CAT for summarising the available evidence in emergency medicine. *J Accid Emerg Med* 1998;15:222–6.
3. Mackway-Jones K, Carley SD. [bestbets.org](http://www.bestbets.org): Odds on favourite for evidence in emergency medicine reaches the worldwide web. *J Accid Emerg Med* 2000;17:235–6.

Is emergency department based brief intervention worthwhile in adults presenting with alcohol related events?

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Abstract

A short cut review was carried out to establish whether emergency department (ED) based brief intervention is worthwhile in adults presenting with alcohol related events. A total of 590 papers were found using the reported search, of

which eight represented the best evidence to answer the clinical question. The author, date and country of publication, patient group studied, study type, relevant outcomes, results, and study weaknesses of these best papers are presented in table 1. The clinical bottom line is that brief psychotherapeutic intervention is worthwhile in adults who attend the emergency department after an alcohol related event.

Three part question

In [adults presenting to the ED with an alcohol related event], is [brief intervention better than standard care] at [reducing subsequent alcohol consumption, reducing alcohol related problems, reducing ED re-attendance and improving psycho-social well-being?]

Clinical scenario

A 33-year-old man arrives at the ED having been involved in a road traffic accident while driving under the influence of alcohol. You have heard about the recent institution of an Alcohol Health Service in the department comprising two designated alcohol health workers who administer brief psychotherapeutic interventions to children and adults presenting with alcohol related events. Having assessed and treated the patient, you wonder whether it is worthwhile referring him on to them.

Search strategy

Medline 1950 to July week 1 2007; Embase 1980 to 2007 week 28; PsycINFO 1967 to July week 2 2007; CINAHL 1982 to July week 1 2007; The Cochrane Library Issue 2, 2007.

Medline: {(alcohol\$.mp. OR ethanol.mp. OR exp Ethanol/OR booze\$.mp. OR exp Alcohol Drinking/) AND (addict\$.mp. OR hazard\$.mp. OR problem\$.mp. OR binge\$.mp. OR abuse\$.mp. OR misuse\$.mp. OR dependence.mp.)} OR [alcoholism.mp. OR exp Alcoholism/OR exp Alcoholic Intoxication/] AND [brief intervention\$.mp. OR (brief.mp. AND intervention\$.mp.) OR exp Psychotherapy, Brief/OR exp Counseling/OR counsel\$.mp. OR exp Health Personnel/OR health worker.mp.]?AND [exp Emergency Service, Hospital/OR emergency department\$.mp. OR (accident and emergency).mp. OR exp Trauma Centers/]?LIMIT to [humans AND English language].

Embase: [(alcohol\$.mp. OR exp ALCOHOL/OR ethanol.mp. OR booze\$.mp. OR exp Alcohol Consumption/) AND (addict\$.mp. OR hazard\$.mp. OR problem\$.mp. OR binge\$.mp. OR abuse\$.mp. OR misuse\$.mp. OR dependence.mp.)] OR [alcoholism.mp. OR exp ALCOHOLISM/OR exp Drug Dependence/OR exp Drug Misuse/OR exp Alcohol Abuse/OR exp ALCOHOL INTOXICATION/] AND [brief intervention\$.mp. OR (brief.mp. AND intervention\$.mp.) OR exp PSYCHOTHERAPY/OR exp COUNSELING/OR counsel\$.mp. OR exp Health Care Personnel/OR health worker.mp.]?AND [exp Emergency Medicine/OR exp Emergency Health Service/OR emergency department\$.mp. OR exp emergency ward/OR (accident and emergency).mp. OR trauma center.mp.]?LIMIT to [humans AND English language].

Table 1

Author, date country	Patient group	Study type	Outcomes	Key results	Study weaknesses
Gentilello, 1999, USA	762 trauma patients aged ≥ 18 years, consenting for follow up; English speaking; resident within state; screening positive for alcohol problem either by: (1) blood alcohol concentration (BAC) ≥ 100 mg/dl; (2) SMAST (Short Michigan Alcoholism Screening Test) score ≥ 3 ; (3) BAC 1–99 and SMAST 1/2; (4) BAC 1–99 and GGT (γ glutamyl transferase) above normal; (5) SMAST 1/2 and GGT above normal. 396 randomised to control and 366 to brief intervention. Control: standard care Intervention: motivational interview by psychologist: 30 mins; personalised feedback comparing drinking quantity and frequency to national norms; level of intoxication at admission and its relation to common effects and injury risk; negative social consequences of alcohol; negative physical consequences and level of alcohol dependence. Focus on personal responsibility for reducing drinking and risk; menu of strategies to assist change; follow up summary letter 1 month later	RCT	Trauma recurrence after discharge using Trauma Registry. Alcohol consumption using AUDIT, DIS form III-R and SADD at baseline, 6 and 12 months	47% reduction in new injuries requiring either ED treatment or trauma centre readmission in intervention vs control group ($p=0.07$). 48% reduction in hospital readmissions in intervention vs control group with up to 3 years follow up. Significant reduction in intake in intervention group vs control group at 12 months (21.8 unit reduction vs 6.7, $p=0.03$); greatest reduction in those with intermediate SMAST scores (intervention group reduction by 21.6 vs increase of 2.3 in controls). Reduction in both groups at 6 months; controls subsequently increased intake back to baseline vs a continued decline in intervention group	Questionable validity of self report data; high loss to follow up by 12 months (47% intervention group, 46% control group); not all p values stated for baseline characteristics; only 45% of control vs 100% of intervention group underwent baseline evaluation; unable to assure sufficiency of sample size
Longabaugh, 2001, USA	539 ED patients aged ≥ 18 years, consenting, English-speaking, presenting with injury not resulting in admission, assessed as hazardous/harmful drinker by either: (1) positive BAC; (2) self reporting alcohol consumption 6 h before injury or (3) AUDIT score ≥ 8 . Residing locally, not under arrest, no psychiatric disorder, no previous diagnosis of alcohol dependence or abuse. 188 randomised to control (SC), 182 to brief intervention (BI) and 169 to brief intervention plus booster (BIB) SC—standard care: treatment for injury by ED staff BI—by social worker/psychologist: 40–60 mins; open ended questions about patient's injury and connection to alcohol use; focus on negative effects attributable to drinking; reflective listening; positive affirmations; summaries; eliciting self motivational statements; discussing whether or not wish to change behaviour and pros and cons of target behaviour; given plan for change BIB—BI plus booster 7–10 days later; discussion of post-discharge experiences in relation to plan; additional information about alcohol use; opportunity to reflect on and change plan	RCT	Negative consequences from drinking in past year using DrInC (Drinker's Inventory of Consequences) at 12 months. Alcohol related injuries in past year using IBC (Injury Behaviour Checklist) at 12 months. Number of heavy drinking days in past year using AUDIT at 12 months	Significantly fewer negative consequences in BIB vs SC group (mean score 2.24 vs 2.52, $p<0.005$). No significant difference between BI (2.40) and SC groups. Significantly fewer alcohol related injuries in patients in BIB vs SC group (mean score 0.863 vs 0.800, $p<0.04$). No significant difference between BI (0.807) and SC groups. In all 3 groups, total injuries decreased significantly in year following treatment relative to year before treatment. Percentage heavy drinking days significantly reduced in all 3 groups from pre- to post-treatment; no significant inter-group differences	Questionable validity of self report data; insufficient sample size; sampling period limited to Thursday to Monday 8 pm to 6 am; high refusal rate (41%); no p values for baseline characteristics; Bonferroni-corrected p values not used to test significance; patients not blinded; variable interventionist success in having patient return for booster session
Crawford, 2004, UK	599 ED patients aged >18 years screening PAT positive; consenting; English speaking; resident within Greater London; no contact with alcohol services; not requesting help with alcohol problems. 312 randomised to control, 287 to brief intervention. Control—standard care: health information leaflet "Think about drink" including list of national help lines and local alcohol support agencies. Intervention—standard care plus appointment with alcohol health worker (mental health nurse): 0 mins; assessment and discussion of current and previous drinking; help with resolving ambivalence regarding drinking; feedback about safe amounts of drinking and suggesting range of strategies to reduce alcohol consumption	RCT	Alcohol consumption over previous 3 months: PAT and Form 90-AQ at 6 months; PAT (Paddington Alcohol Test), Form 90-AQ, and Steady Pattern Grid at 12 months. ED re-attendance in following year using local records. General mental health: GHQ (General Health Questionnaire) at 6 months. Health related quality of life: EQ-5D (Euro-QoL) at 12 months	At 6 months significantly lower mean weekly alcohol consumption in intervention vs control group (59.7 units vs 83.1 units, $p=0.02$); non-significant difference at 12 months (57.2 vs 70.8). Significantly fewer ED visits in intervention vs control group (1.2 vs 1.7, $p=0.046$) No significant difference No significant difference	Questionable validity of self report data; high loss to follow up (36%); insufficient baseline data collected, therefore unable to assess change in outcomes from baseline; only 29% of those referred for brief intervention attended appointment; patients not blinded; attendance at other EDs not formally assessed (relied on patient self report)

Table 1 Continued

Author, date country	Patient group	Study type	Outcomes	Key results	Study weaknesses
Mello <i>et al</i> , 2005, USA	As Longabaugh <i>et al</i> . Patients retrospectively analysed by separating those with sub-critical injuries from motor vehicle crash (MVC) from those with non-MVC injuries. 46 in MVC-SC, 107 in non-MVC-SC; 53 MVC-BI, 95 non-MVC-BI; 34 MVC-BIB, 98 non-MVC-BIB	RCT	Negative consequences from drinking in past year using DrInC Alcohol related and total injuries in past year using IBC	Non-significant differences between MVC and non-MVC groups MVC-BIB group had significantly fewer injuries than MVC-SC group ($p < 0.001$). In non-MVC group, no significant differences between BIB and SC arms	Questionable validity of self report data; insufficient sample size; unequal numbers of MVC and non-MVC participants as original randomisation not conducted on basis of injury type; baseline data inadequately reported; analyses inadequately reported
Bazargan-Hejazi, 2005, USA	295 ED patients aged ≥ 18 years screening positive to CAGE (score ≥ 1); spoke English or Spanish; consented; no professional alcohol counselling within past 12 months; not in police custody; medical treatment and/or cognitive impairment not precluding interview. 151 randomised to standard care (SC), 144 to brief intervention (BI). SC: medical care plus packet of health information. BI: SC plus 15–20 min interview by health promotion advocate. Established rapport with patient; discussed alcohol use; explored pros and cons of use (decisional balance) using reflective listening; assessed readiness to change; and negotiated plan for change based on the patient's perception of readiness. Participants given copy of plan for change	RCT	Alcohol consumption using AUDIT (Alcohol Use Disorders Identification Test) at baseline and 3 months	48% of patients in BI group vs 38% in SC group reduced their consumption (not significant). For at-risk/moderate group (AUDIT score 7 to 18) significant intervention group improvement rate of 34% vs 13% for control group ($p = 0.0099$). For dependent drinkers (AUDIT score 19 to 40) non-significant intervention group improvement rate of 66% vs 60%	Questionable validity of self report data; selection bias as "randomisation" not truly random (by alternative allocation) and high refusal rate (40%). Sampling period limited to 9 am–6 pm week days. High loss to follow up (37%). Small sample size. Short follow up period. Patients not blinded; investigators not blinded? Only one outcome measured
Sommers <i>et al</i> , 2006, USA	187 trauma centre patients aged between 18–45 years hospitalised with an injury after an MVC (motor vehicle crash). Hospital admission within 24 h of injury; BAC ≥ 10 mg/dl; English-speaking; intact cognition; potential for discharge within 4 weeks. Excluding patients attending alcohol treatment programme in past year or receiving advice from health care provider in past 3 months; evidence of alcohol withdrawal; alcohol consumption > 150 g/day; AUDIT (Alcohol Use Disorders Identification Test) score ≥ 2 . 56 randomised to control (C); 68 to simple advice (SA) and 63 to brief counselling (BC). C: 20 min health interview but no intervention. SA: 20 min health interview plus 5 min advice from nurse clinician about importance of sensible drinking or abstinence; booster repeat session at 1 month post-discharge plus printed self-help manual. BC: 20 min health interview plus 5 min advice plus 15–20 min patient centred counselling on personal problem solving strategies using components from TrEAT protocol and FRAMES (Feedback, Responsibility, Advice, Menu, Empathy, Self-efficacy) model; booster repeat session at 1 month post-discharge plus printed self help manual	RCT	Alcohol consumption (standard drinks/month and binges/month) using Timeline Followback procedure at baseline and 12 months. Adverse driving events (driving related suspension, citations for driving under the influence (DUI), any citation (including DUI) anytime during 12 months before or after the MVC but not including it) via police crash records and driving records from state motor vehicle departments. Health status (number and length of hospital stays, number of ED visits and number of activity limiting illness/injury within past 12 months) via interview	Significant reduction across all groups in standard drinks/month and binges/month (mean 56.8 to 32.1 and 5.79 to 3.21 at 12 months). No significant inter-group difference Only significant reduction in motor vehicle citations across all groups (35% vs 26% from pre-post MVC, $p = 0.019$). No significant inter-group difference Only significant reduction in activity limiting illness/injury within past month (37% vs 20% at 12 month follow up, $p = 0.011$). No significant inter-group difference	Questionable validity of self report data regarding alcohol consumption; insufficient sample size; excluded patients who had significantly higher BAC than those who enrolled; high refusal rate (61%); randomisation procedure not described; patients not blinded; high loss to follow up (47%); significantly higher attrition rate in black/African patients vs white patients (67% vs 44% $p = 0.05$)

PsycINFO: {[alcohol\$.mp. OR ethanol.mp. OR exp ETHANOL/OR booze\$.mp.) AND (addict\$.mp. OR hazard\$.mp. OR problem\$.mp. OR binge\$.mp. OR abuse\$.mp. OR misuse\$.mp)] OR [alcoholism.mp. OR exp ALCOHOLISM/OR exp Alcohol Drinking Patterns/OR exp Drug Dependency/OR exp ALCOHOL ABUSE/OR exp Alcohol intoxication/]}?AND [brief intervention\$.mp. OR (brief.mp. AND (exp INTERVENTION/OR intervention\$.mp.)) OR exp Brief Psychotherapy/OR exp Counseling/OR counsel\$.mp. OR exp Health Personnel/OR

health worker.mp.]}?AND [exp Emergency Services/OR emergency department\$.mp. OR (accident and emergency).mp. OR trauma center\$]?LIMIT to [humans AND English language]

CINAHL:?[alcohol\$.mp. OR ethanol.mp. OR exp Alcohol, Ethyl/OR booze\$.mp. OR exp Alcohol Drinking/) AND (addict\$.mp. OR hazard\$.mp. OR problem\$.mp. OR binge\$.mp. OR abuse\$.mp. OR misuse\$.mp OR dependence.mp.)] OR [alcoholism.mp. OR exp ALCOHOLISM/OR exp Alcohol abuse/OR exp Alcoholic Intoxication/]}?AND [brief intervention\$.mp.

Table 1 Continued

Author, date country	Patient group	Study type	Outcomes	Key results	Study weaknesses
Daver <i>et al</i> , 2006, Spain	85 trauma patients aged ≥ 18 years; MVC within 6 h before admission; positive BAC (≥ 0.2 g/dl); Spanish-speaking; consenting; residents; AUDIT < 15 ; not presenting with severe medical, psychiatric or social conditions; no alcohol dependence. 45 randomised to minimal intervention (MI); 40 to brief intervention (BI) MI: 5 mins; empathic advice after comparing evaluated behaviour with advisable one; information leaflet. BI: 15–20 mins; motivational intervention; FRAMES; discussion of good and bad things derived from alcohol consumption; striking a balance; drawing own conclusions; information leaflet and self-help booklet. Both administered by nurse or social worker	RCT	Alcohol consumption during previous month using AUDIT-C at 3, 6 and 12 months. Proportion of AUDIT-C positive patients (≥ 5 for males, ≥ 4 for females) becoming negative. Number of accidents within previous year at baseline and 12 months	47.5% of patients in BI group vs 42% in MI group had reduced consumption at 12 months (not significant). 52% of AUDIT-C positive patients in BI group vs 48% in MI group had become negative at 12 months (not significant). Significant 60% reduction in accident rates ($p < 0.05$) in total sample	Questionable validity of self report data regarding alcohol consumption; small sample size; no traditional control group; randomisation procedure not described; intention-to-treat analysis only performed at 12 months; only 85 of 126 (67%) eligible patients were enrolled due to logistical reasons; high loss to follow up (33%); source of data regarding accident rate not stated; patients not blinded
Schermer, 2006, USA	126 trauma patients aged 16–80 years; admission ≥ 24 h; injury resulting from motor vehicle crash; English speaking; consenting; primary residence in study location; admission blood alcohol concentration ≥ 80 mg/dl or AUDIT score ≥ 8 ; no brain injury requiring discharge to a rehabilitation hospital. 62 randomised to standard care (SC), 64 to brief intervention (BI). SC: patients provided with list of telephone numbers of local alcohol treatment organisations. BI: by social worker or trauma surgeon; 30 mins; discussion of patient's good and bad perceptions of drinking and the motivation and confidence to change drinking behaviours; non-confrontational; patient centred; reflective listening; empathy; boost self efficacy; no prescription to change drinking in particular way	RCT sub-analysis (primary trial not stated)	Driving under the influence (DUI) arrest within 3 years of discharge (documented by matching demographic information, driver's licence and social security numbers to state traffic safety data)	21.9% of control group had DUI arrest vs 11.3% of intervention group. Number needed to treat (NNT) = 9.4. Multivariate analysis showed that intervention was the strongest protective factor for DUI arrest (odds ratio 0.32, confidence interval 0.11 to 0.96); prior number of DUIs and age were associated with DUI post-discharge but AUDIT screening score was not	Unable to assure sufficiency of sample size; 20% eligible patients refused; no patient or investigator blinding?; randomisation procedure not described; information bias regarding DUI arrests out-of-state and possible shielding of under-age DUIs; differential timing of follow up between patients, therefore results may underestimate true 3 year DUI rates

RCT, randomised controlled trial.

OR (brief.mp. AND intervention\$.mp.) OR exp PSYCHOTHERAPY/OR exp COUNSELING/OR counsel\$.mp. OR exp Health Personnel/OR health worker.mp.]?AND [exp Emergency Service/OR emergency department\$.mp. OR (accident and emergency).mp. OR exp Trauma Centers/]?LIMIT to [humans AND English language].

The Cochrane Library: [Alcohol Drinking/OR alcohol*.mp. OR problem drinking.mp.] AND [Psychotherapy, Brief/OR brief intervention.mp.] AND [Emergency Service, Hospital/OR Emergency Medical Services/OR emergency department*.mp.]

Search outcome

A total of 590 articles were found in all databases, of which eight were relevant and of sufficient quality for inclusion (table 1).

Comments

Variation in inclusion criteria, the content and duration of intervention and the measurement tools used limits comparison of trials. Study weaknesses reflect the difficulties of conducting RCTs in a hard-to-reach population within a busy healthcare setting: time constraints, high staff and patient turnover and emergency care requirements make recruitment difficult, demonstrable by the small sample sizes, high refusal rates and losses to follow up; furthermore, adequate blinding is problematic. Many trials conclude that it is difficult to separate

the effect on outcomes of the ED attendance itself versus the screening process for enrolment into trials versus the actual intervention delivered, thus adding to the complexity of interpretation.

► CLINICAL BOTTOM LINE

Despite the difficulties faced in attempting to conduct robust trials in the ED setting, results show that brief psychotherapeutic intervention is worthwhile in adults who attend the ED after an alcohol related event.

Gentilello LM, Rivara FP, Donovan DM, *et al*. Alcohol interventions in a trauma centre as a means of reducing the risk of injury recurrence. *Ann Surg* 1999;**230**:473–83.

Longabaugh R, Woolard RE, Nirenberg TD, *et al*. Evaluating the effects of a brief motivational intervention for injured drinkers in the emergency department. *J Stud Alcohol* 2001;**62**:806–16.

Crawford MJ, Patton R, Touquet R, *et al*. Screening and referral for brief intervention of alcohol-misusing patients in an emergency department: a pragmatic randomised controlled trial. *Lancet* 2004;**364**:1334–9.

Mello MJ, Nirenberg TD, Longabaugh R, *et al*. Emergency department brief motivational interventions for alcohol with motor vehicle crash patients. *Ann Emerg Med* 2005;**45**:620–5.

Bazargan-Hejazi S, Bing E, Bazargan M, *et al*. Evaluation of a brief intervention in an inner-city emergency department. *Ann Emerg Med* 2005;**46**:67–76.

Sommers MS, Dyehouse JM, Howe SR, *et al*. Effectiveness of brief interventions after alcohol-related vehicular injury: a randomised controlled trial. *J Trauma* 2006;**61**:523–33.

Daver AR, Rubio ES, Coris ME, *et al*. Brief intervention in alcohol-positive traffic casualties: is it worth the effort? *Alcohol Alcohol* 2006;**41**:76–83.

Schermer CR, Moyers TB, Miller WR, *et al*. Trauma center brief interventions for alcohol disorders decrease subsequent driving under the influence arrests. *J Trauma* 2006;**60**:29–34.