

Systematic review of alcohol screening tools for use in the emergency department

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ABSTRACT

To ascertain which alcohol screening tool is most accurate in identifying alcohol misuse in patients in the emergency department a systematic review of diagnostic cohort studies of appropriate alcohol screening tools was performed. A thorough search of medical databases and relevant peer journals was conducted. Citation and author tracking was also utilised due to an initial paucity of relevant literature. Seven relevant papers were identified from this search, which allowed a review of the quality of the following alcohol screening tools: the fast alcohol screening tool (FAST), the Paddington alcohol test (PAT), the rapid alcohol problem screen (RAPS-4) and the TWEAK (where TWEAK is an acronym of the first letter of the key words in the questions of this screening tool: tolerance, worried, eye-opener, amnesia, K (cut-down)). The most sensitive screening tool within this review appears to be the FAST (93–94%), which has a specificity of 86–88% with a positive predicted value of 86–87%. Although the FAST appears to be the best for accurately identifying alcohol misuse within emergency department patients, it was assessed as a universal screening tool, and it may not be feasible (time or cost) to screen all who present to this service. In contrast, the PAT has been developed to be used on a select population within the emergency department and has already been shown to be cost-effective.

It has been estimated that annually a third of the 14 million people who attend the UK's emergency departments present with a condition related to alcohol consumption.¹ According to government figures this proportion increases after midnight to 70% of all attendances.² This is against a background of increasing mortality rates afforded to alcohol.³

The government has attempted to combat these problems with various campaigns and initiatives. In 1992, the White Paper 'Health of the nation'⁴ advised the public to restrict their weekly alcohol intake to 21 units or less for a man and 14 units or less for a woman. Three years later in response to concerns related to binge drinking, the Department of Health recommended that daily consumption should be limited to three to four units for a man and two to three units for a woman.⁵ Despite these guidelines it has been reported that in the UK '10 million people drink above the Government's recommended limits'.⁶

The 2004 'alcohol harm reduction strategy'⁷ focused on the early intervention and management of alcohol use disorders. It acknowledged the role of the emergency department as a facilitator of preventive medicine for alcohol misuse with the use of screening and brief intervention. In 2005 the

Department of Health was given £32 million to spend on these new initiatives.⁸

With this in mind, Patton *et al*⁹ surveyed emergency departments in England in 2006 to assess the extent to which these recommendations had been adopted. They had a 98.9% response rate to their questionnaire. Their results showed that 73.9% offered advice on alcohol and 44.4% offered treatment for alcohol problems, but only 16.9% had access to an alcohol health worker. However, only four departments were using a formal screening tool to identify these patients (2.1%).⁹

At present there does not appear to be a gold standard tool for screening for alcohol misuse within the emergency setting. With this in mind a systematic review was undertaken of the available literature to ascertain: 'which alcohol screening tool is most accurate in identifying alcohol misuse in patients in the emergency department?'

LITERATURE REVIEW

Inclusion criteria

Screening programmes have a primary goal of identifying disease at an early stage in its natural history in order for subsequent intervention to prevent the disease from developing further or by curing it completely. 'Alcohol use disorders' is a term used to encapsulate the full spectrum of alcohol misuse, which includes binge drinking, harmful drinking behaviours, hazardous alcohol drinking and alcohol dependence.

The UK National Screening Committee¹⁰ states that a screening test should be 'simple, safe, precise and validated' and 'should be acceptable to the population'. For a screening tool to be used effectively within the time-pressured environment of the emergency department it needs to be short. Therefore, the interventions chosen for this review were: the fast alcohol screening tool (FAST),¹¹ the Paddington alcohol test (PAT),¹² the rapid alcohol problem screen (RAPS-4)¹³ and the TWEAK (where TWEAK is an acronym of the first letter of the key words in the questions of this screening tool: tolerance, worried, eye-opener, amnesia, K (cut-down))¹⁴ (see Appendices 1–4). The search was limited to these tools because of their brevity and because they are designed to identify a spectrum of alcohol use disorders from hazardous drinking through to alcohol dependence.

The AUDIT-C, the short version of the alcohol use disorders identification test (AUDIT) was not included in this review. The only paper identified within the literature search, which was based in an emergency setting, was tested on a select adult population of 18–20 year olds.¹⁵ The older screening tools—the CAGE (where CAGE is an

acronym of the first letters of the key words in the questions of this screening tool: cut-down, annoyed, guilty, eye-opener).¹⁶ and the brief Michigan alcoholism screening test (MAST)¹⁷—were excluded from the review because they were designed to screen for alcohol dependence alone. In addition, the papers that are included in this review showed these tools to be less efficient than the newer tools when used on an emergency department population.^{18 19}

The comparators for these studies were either standardised diagnostic criteria, or the WHO's AUDIT²⁰ as a reference standard. The diagnostic criterion used within the studies for alcohol abuse/dependence was derived from either the WHO International Classification for Diseases, 10th revision (ICD-10)²¹ or the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV),²² which is produced by the American Psychiatric Association. These criteria were elicited from an additional set of questions within the study interview, the composite international diagnostic interview (CIDI).²³ This diagnostic interview was produced by the WHO and the US Alcohol, Drug Abuse and Mental Health Administration. The AUDIT was developed in the early 1990s by investigators from six countries.²⁴ They produced a multiculturally sensitive, 10-item screening tool to identify hazardous and harmful drinkers that was initially designed for use in the primary care setting (see Appendix 5). Saunders *et al*²⁰ showed the AUDIT to have a sensitivity of 92% (score of ≥ 8), with a specificity of 94%. The AUDIT is not considered within the context of an 'intervention' in this review, because of its length. Despite its extensive validity within the general population,²⁰ in the emergency setting it has been shown to be less accurate in detecting harmful and dependent drinking behaviours within the female population (sensitivities of 72% and 66%, respectively).²⁴

The study population was targeted to include only adult patients (age ≥ 18 years) attending the emergency department with an alcohol-related injury or illness. Papers that have studied children, inpatients within a hospital setting or patients in a primary care setting were excluded.

The outcome measures for these tools were their sensitivity, specificity, positive predictive value and negative predictive value for identifying harmful or hazardous drinking behaviours within patients of the emergency department.

Search strategy

The search was commenced using the core health database, Medline via OvidSP (Ovid MEDLINE(R) In-Process & Other Non-Indexed Citations and Ovid MEDLINE(R) 1950 to Present). The following search terms were used: {(emergency department \$.mp. OR (accident & emergency\$.mp. OR (emergency room \$.mp. OR (trauma centre\$.mp.) AND [(screen\$ OR screening\$ OR identify\$ OR detect\$ OR question\$ OR questionnaire\$.mp.] AND [(alcohol OR alcoholism\$ OR addict\$ or hazardous drinking\$ or harmful drinking\$ or alcohol drinking\$ or drunk\$ or intoxicated\$.mp.) AND [(intervene\$ or intervention\$ or brief intervention\$ or motivational interview\$ or advice or alcohol health worker\$ or counselling\$.mp.)] — LIMIT to English Language and Human studies.} This produced a list of 179 papers. Similar searches were applied to 'Cinahl' by means of EBSCO, the nursing and allied health literature database and 'PsychINFO', the international database for psychology and related fields. They yielded 18 and 75 related papers, respectively. The Cochrane database was also searched using the term 'alcohol screening', which produced nine reviews (non-Cochrane), 354 clinical trials, 11 method studies, two technology assessment papers and 10 economic evaluations (figure 1).

Identification

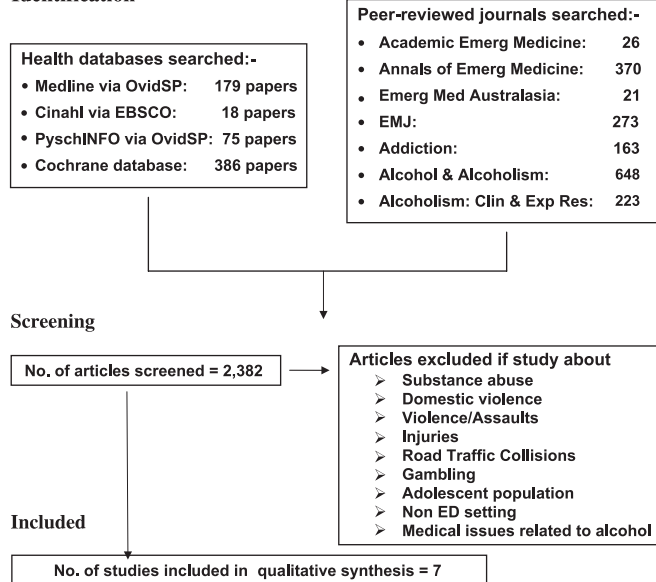


Figure 1 Modified QUORUM statement. ED, emergency department; EMJ, *Emergency Medicine Journal*.

During the appraisal of the papers retrieved from the above searches, a paucity of papers was found actually addressing the research question, and so a review of papers found within their reference lists was used to expand the capture of all relevant articles. In addition, a search of the relevant peer journals was performed using the search term: 'alcohol screening'. These journals included: *Academic Emergency Medicine* (26), *Addiction* (163), *Alcohol and Alcoholism* (648), *Alcoholism: Clinical and Experimental Research* (223), *Annals of Emergency Medicine* (370), *Emergency Medicine Australasia* (21) and *Emergency Medicine Journal* (273).

To ensure that all the relevant papers had been extrapolated on these screening tools, a search using the following terms was also performed: Paddington Alcohol Test and PAT; Fast Alcohol Screening Tool and FAST; TWEAK; Rapid alcohol problem screen, RAPS-4 and RAPS-QF; and Alcohol Use Disorder Identification Test and AUDIT. For completion, author tracking and citation tracking was also performed.

Data extraction and analysis

The literature search found a total of 2382 papers. Using the inclusion criteria described above, seven relevant and appropriate papers were found to review.^{11 13 18 19 25–27} These papers were critically appraised using Greenhalgh's checklist for appraising papers that looks 'to validate a screening test'.²⁸ Using the questions involved in the appraisal tool the key features of these studies were extrapolated in order to synthesis the data.

Table 1 shows the main features of the seven evaluation studies using the 'PICO' model. For each brief screening tool under review, there are two comparative studies; except RAPS-4, which has three evaluation studies. The first two papers by Cherpitel^{18 25} utilise the same population sample but assess different outcomes—the first assesses available screening tools, whereas the second assesses the newly developed rapid alcohol problem screen against these known tests.

Table 2 shows the participants' characteristics within the studies. The majority of studies were similarly matched for sample size—between 400 and 500 participants. The studies from the 1990s had a sex ratio of 3:2 in favour of women. This effect was reversed in the papers from 2000 onwards. The

Review

Table 1 Outline of studies eligible for systematic review

Author, date and country	Population	Screening tools	'Gold standard'
Cherpitel, 1995, USA ¹⁸	Probability sample from ED (level 1 trauma centre in Mississippi); n=1330	CAGE, brief MAST, TWEAK, AUDIT, history of trauma scale	ICD-10 criteria for harmful drinking and alcohol dependence
Cherpitel, 1995, USA ²⁵	Probability sample from ED (level 1 trauma centre in Mississippi); n=1330	RAPS, CAGE, brief MAST, AUDIT, TWEAK, history of trauma scale	ICD-10 criteria for harmful drinking and alcohol dependence
Cherpitel, 2000, USA ¹³	Probability sample from ED in USA; n=1952	RAPS, RAPS-4, CAGE, brief MAST, AUDIT and TWEAK	ICD-10 and DSM-IV criteria for harmful drinking, alcohol abuse and dependence
Hodgson <i>et al</i> , 2002, UK ¹¹	Opportunistic sample for validation from London ED; n=100	FAST	AUDIT
Cherpitel and Bazargan, 2003, USA ²⁶	Probability sample from ED, from which only Hispanic and African-American populations were analysed; n=412	AUDIT, RAPS-4, RAPS-QF	DSM-IV criteria for alcohol dependence and alcohol abuse
Hodgson <i>et al</i> , 2003, UK ¹⁹	Random sample from 4 ED: London, Cardiff, Bristol, Southampton; n=2185	FAST, PAT, CAGE	AUDIT
Patton <i>et al</i> , 2004, UK ²⁷	Opportunistic sampling from London ED, St Mary's Hospital; n=468	PAT	AUDIT

AUDIT, alcohol use disorders identification test; DSM-IV, Diagnostic and Statistical Manual of Mental Disorders; ED, emergency department; FAST, fast alcohol screening tool; ICD-10, International Classification for Diseases, 10th revision; MAST, Michigan alcoholism screening test; PAT, Paddington alcohol test; RAPS-4, rapid alcohol problem screen.

prevalence of alcohol misuse (abuse and dependence) appeared similarly matched across the studies—range of 36–43%.

Table 3 summarises the results of the seven studies. The most sensitive screening tool within the review appears to be the FAST (93–94%), which has a specificity of 86–88% with a positive predicted value of 86–87%. However, the RAPS-4 has a better positive predictive value (90–92%).

The research papers from the USA are of dubious quality. The first paper by Cherpitel¹⁸ is a relatively good diagnostic cohort study. The results were elicited from a randomly selected patient cohort. There is no evidence of work-up bias—all patients received both the 'intervention' screening questions as well as the gold standard comparator, CIDI.²³ The use of the diagnostic criteria for ICD-10 as the gold standard means that there is no incorporation bias. However, the use of the same cohort to assess Cherpitel's new screening tool, the RAPS,²⁵ without actually administering it to this population is peculiar. The tool is composed of items directly taken from the TWEAK, AUDIT and brief MAST (see Appendix 3), and brings into question the reliability of the results when these tests are in direct comparison with this tool. The following two studies also review the performance of the evolving RAPS^{13 26} against its derivative tests.

The research studies from the UK utilised two different population samples—the studies on the FAST^{11 19} had participants who were recruited consecutively by the triage nurse of the

emergency department, whereas the PAT study from 2004 used an opportunistic sample of all emergency department attendees (n=468).¹⁹ All the UK-based studies used the AUDIT as their reference standard. This is a dubious choice considering the FAST is essentially a shortened version of the AUDIT,¹¹ which may have introduced incorporation bias as the reference standard is not independent of the intervention. The PAT has been developed from the CAGE and the MAST¹² so should not encounter this bias.

None of the studies commented upon blinding or observer bias, and there were no κ scores to assess interobserver reliability on using these questionnaires; which were all undertaken within an interview-based setting. The results of all the studies included sensitivities and specificities for each tool, but the positive and negative predicted values within table 3 were not reported and had to be calculated from the given figures. The CI were also calculated from the results.

REVIEW FINDINGS AND LIMITATIONS

The review found that the most accurate screening tool within an emergency department population was the FAST.^{11 19} This screening tool was adapted from the 10-item AUDIT questionnaire.¹¹ The FAST tool has four questions (see Appendix 1); the first of which is said to identify over 50% of respondents accurately as either a hazardous or non-hazardous drinker.¹¹

Table 2 Study characteristics

Author, date and country	Number analysed	Age (years)	Gender	Ethnicity	Alcohol problems diagnosed (%)
Cherpitel, 1995, USA ¹⁸	492/1498	45% 18–29 26% 30–39 30% ≥40	M 38% F 62%	Black 82% White 18%	58% current drinkers –17% harmful –19% dependent
Cherpitel, 1995, USA ²⁵	492/1498	45% 18–29 26% 30–39 30% ≥40	M 38% F 62%	Black 82% White 18%	58% current drinkers –17% harmful –19% dependent
Cherpitel, 2000, USA ¹³	1429/1952	No information	M 49% F 51%	Black 19% White 25% Hispanic 30% Other 26%	9% harmful drinkers 13% dependent
Hodgson <i>et al</i> , 2002, UK ¹¹	100	69% >25	M 58% F 42%	No information	No information
Cherpitel and Bazargan, 2003, USA ²⁶	412/579	37% 18–29 41% 30–49 22% ≥50	M 59% F 41%	African-American 48% Hispanic 52%	46% current drinkers –19% dependent –24% abuse
Hodgson <i>et al</i> , 2003, UK ¹⁹	2169/2185	28% ≤25 72% ≥25	M 59% F 41%	No information	39% alcohol misuse
Patton <i>et al</i> , 2004, UK ²⁷	468	No information	No information	No information	No information

Table 3 Results from evaluation studies

Author, date and country	Sensitivity (95% CI)	Specificity (95% CI)	Positive predicted value (%)	Negative predicted value (%)
Cherpitel, 1995, USA ¹⁸	Harmful drinking TWEAK 87% (85% to 89%) Alcohol dependence TWEAK 84% (81% to 87%)	TWEAK 86% (84% to 88%) TWEAK 86% (84% to 88%)	TWEAK 54% TWEAK 59%	TWEAK 97% TWEAK 96%
Cherpitel, 1995, USA ²⁵	Harmful drinking and alcohol dependence TWEAK 87% (84% to 90%) RAPS 90% (87% to 93%)	TWEAK 76% (72 to 80%) RAPS 78% (74% to 82%)	TWEAK 62% RAPS 64%	TWEAK 93% RAPS 95%
Cherpitel, 2000, USA ¹³	Harmful drinking RAPS-4 55% (52% to 58%) Alcohol dependence RAPS-4 93% (92% to 94%)	RAPS-4 79% (77% to 81%) RAPS-4 87% (85% to 89%)	RAPS-4 21% RAPS-4 51%	RAPS-4 95% RAPS-4 99%
Hodgson <i>et al</i> , 2002, UK ¹¹	Hazardous drinking FAST 97% (94% to 100%)	FAST 91% (85% to 97%)	FAST 85%	FAST 98%
Cherpitel and Bazargan, 2003, USA ²⁶	Alcohol abuse RAPS-4 82% (78% to 86%) RAPS-QF 98% (97% to 99%) Alcohol dependence RAPS-4 89% (86% to 92%)	RAPS-4 93% (90% to 96%) RAPS-QF 83% (79% to 87%) RAPS-4 90% (87% to 93%)	RAPS-4 79% RAPS-QF 65% RAPS-4 68%	RAPS-4 94% RAPS-QF 99% RAPS-4 97%
Hodgson <i>et al</i> , 2003, UK ¹⁹	Hazardous/harmful drinking FAST 93% (89% to 95%) PAT 70% (64% to 75%)	FAST 88% (84% to 90%) PAT 85% (81% to 88%)	FAST 83% PAT 72%	FAST 95% PAT 83%
Patton <i>et al</i> , 2004, UK ²⁷	Hazardous/harmful drinking PAT 97% (95% to 99%)	PAT 88% (85% to 91%)	PAT 79%	PAT 99%

FAST, fast alcohol screening tool; PAT, Paddington alcohol test; RAPS-4, rapid alcohol problem screen.

However, this tool has yet to be tested against valid diagnostic criteria for alcohol problems.

The TWEAK and RAPS-4 were used as universal screening tools within the American emergency department setting. Despite the fact that the TWEAK was originally developed to assess hazardous drinking within pregnant women in an antenatal setting,¹⁴ it worked well as a screening test within a mixed gender cohort.^{18 25} While its sensitivity was relatively good within this population (84–87%, with tight CI), the calculated positive predicted values were poor (54–62%). In comparison its negative predicted values were good. The RAPS-4 has a similar profile to the TWEAK, but it appears to be more effective in detecting alcohol dependence compared with alcohol misuse.^{13 18 25}

The PAT is an evolving screening tool for identifying hazardous and harmful drinkers that was developed within the emergency department of St Mary's Hospital in London.¹² The tool has undergone a number of improvements since it was developed in 1996.^{12 27 29 30} It is not a universal screening instrument—it has been developed to target certain emergency room presentations that have been found to be associated with a high risk of alcohol misuse (the 'top 10' conditions).²⁹ Within the literature found for this review, the PAT was only found to have been validated against the AUDIT in 2004.²⁷ The more recent updates have not been validated in a similar manner.³⁰ When compared with the FAST, it was applied as a universal screening tool, which may account for its low sensitivity in this study.¹⁹ Despite the fact that this is a well-established screening tool within an emergency department, there needs to be further research to prove its effectiveness when applied to all emergency departments.

CONCLUSION AND RECOMMENDATIONS

From the literature found for this review, the FAST appears to be the best for accurately identifying alcohol misuse within emergency department patients, having been tested in the largest multicentre trial. However, this tool was used for universal screening, and it may not be feasible (time or cost) to screen all

who present to our service. A study undertaken in Chesterfield Royal Hospital looked at the value of employing universal screening and found that in a 6-month period only 28% of those attending the department had been questioned.³¹ In contrast, the PAT has been developed to be used on a select population within the emergency department and has already been shown to be cost-effective.³²

A randomised cluster trial is currently taking place within nine UK emergency departments (screening and intervention programme for sensible drinking; SIPS).³³ Part of the trial is going to assess the effectiveness and cost-effectiveness of different screening approaches—universal screening (FAST) versus targeted screening using the PAT. This more robust method of research—the randomised controlled trial—should bring good quality evidence to direct our practice in the future.

However, in the meantime we should not be discouraged from implementing alcohol screening within our emergency departments. There is already good evidence to suggest that screening alone has a positive impact on drinking behaviours.^{34 35}

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REFERENCES

1. **Alcohol Education and Research Council.** "Referral for alcohol misuse in an Emergency Department. Results of a randomised trial" *Alcohol Insight*. No 20, 2005. <http://www.aerc.org.uk> (accessed June 2009).
2. **Prime Minister's Strategy Unit.** *Alcohol harm reduction strategy for England*. London: Cabinet Office, 2004. <http://www.strategy.gov.uk/work-areas/alcohol-misuse/index.asp> (accessed June 2009).
3. **Office for National Statistics.** Alcohol deaths: rates in UK continue to rise, 2008. <http://www.statistics.gov.uk/cci/nugget.asp?id=1091> (accessed June 2009).
4. **Department of Health.** *The health of the nation: a strategy for health in England*. London: HMSO, 1992.
5. **Department of Health.** *Sensible drinking: the report of the Inter-departmental Working Group*. London: HMSO, 1995.

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6. **Home Office and NHS.** "Alcohol: know your limits" campaign, 2008. <http://www.units.nhs.uk> (accessed June 2009).
7. **Prime Minister's Strategy Unit.** *Alcohol harm reduction strategy*. London: Cabinet Office, 2004. <http://www.cabinetoffice.gov.uk/media/cabinetoffice/strategy/assets/caboffice%20alcoholhar.pdf> (accessed June 2009).
8. **Department of Health.** *Boost for alcohol treatment provision with publication of programme of improvement*. London: Department of Health, 2005. http://www.dh.gov.uk/en/Publicationsandstatistics/Pressreleases/DH_4122447 (accessed June 2009).
9. **Patton R**, Strang J, Birtles C, *et al.* Alcohol: a missed opportunity. A survey of all accident and emergency departments in England. *EMJ* 2007;**24**:529–31.
10. **UK National Screening Committee.** <http://www.screening.nhs.uk/uknsc> (accessed June 2009).
11. **Hodgson R**, Alwyn T, John B, *et al.* The fast alcohol screening test. *Alcohol Alcohol* 2002;**37**:61–6.
12. **Smith SGT**, Touquet R, Wright S, *et al.* Detection of alcohol misusing patients in accident and emergency departments: the Paddington alcohol test (PAT). *J Accid Emerg Med* 1996;**13**:308–12.
13. **Cherpitel CJ.** A brief screening instrument for problem drinking in the emergency room: RAPS-4. *J Stud Alcohol* 2000;**61**:447–9.
14. **Russell M**, Martier S, Sokol R, *et al.* Screening for pregnancy risk-drinking. *Alcohol Clin Exp Res* 1994;**18**:1156–61.
15. **Kelly TM**, Donovan JE, Chung T, *et al.* Brief screens for detecting alcohol use disorders among 18–20 year old young adults in emergency departments: comparing AUDIT-C, CRAFFT, RAPS4-QF, FAST, RUFT-Cut, and DSM-IV 2-item scale. *Addict Behav* 2009;**34**:668–74.
16. **Ewing JA.** Detecting alcoholism: the CAGE questionnaire. *JAMA* 1984;**252**:1905–7.
17. **Pokorny AD**, Miller BA, Kaplan HB. The brief MAST: a shortened version of the Michigan alcoholism screening test. *Am J Psychiatry* 1972;**129**:342–4.
18. **Cherpitel CJ.** Screening for alcohol problems in the emergency department. *Ann Emerg Med* 1995;**26**:158–66.
19. **Hodgson RJ**, John B, Abbasi T, *et al.* Fast screening for alcohol misuse. *Addict Behav* 2003;**28**:1453–63.
20. **Saunders JB**, Aasland OG, Babor TF, *et al.* Development of the alcohol use disorders identification test (AUDIT): WHO collaborative project on early detection of persons with harmful alcohol consumption — II. *Addiction* 1993;**88**:791–804.
21. **World Health Organisation.** *International Classification of Disease: ICD-10 Classification of Mental and Behavioural Disorders*. WHO, Geneva, 1992.
22. **American Psychiatric Association.** *Diagnostic and Statistical Manual of Mental Disorders. Text revision DSM-IV-TR*. Washington DC, USA: American Psychiatric Association, 2000.
23. **Wittchen HU**, Robins LN, Cottler L, *et al.* Cross-cultural feasibility, reliability and sources of variance of the composite international diagnostic interview (CIDI): results of the multi-centre WHO/ADAMHA field trials (wave 1). *Br J Psychiatry* 1991;**151**:645–53.
24. **Reinert DF**, Allen JP. The alcohol use disorders identification test (AUDIT): a review of recent research. *Alcohol Clin Exp Res* 2002;**26**:272–9.
25. **Cherpitel CJ.** Screening for alcohol problems in the emergency department: a rapid alcohol problem screen. *Drug Alcohol Depend* 1995;**40**:133–7.
26. **Cherpitel CJ**, Bazargan S. Screening for alcohol problems: comparison of the AUDIT, RAPS-4 and RAPS-QF among African-Americans and Hispanic patients in an inner city emergency department. *Drug Alcohol Depend* 2003;**71**:275–80.
27. **Patton R**, Hilton C, Crawford MJ, *et al.* The Paddington alcohol test: a short report. *Alcohol Alcohol* 2004;**39**:266–8.
28. **Greenhalgh T.** *How to read a paper: the basics of evidence-based medicine*. 3rd edn. London: BMJ Publishing, 2006.
29. **Huntley JS**, Blain C, Hood S, *et al.* Improving detection of alcohol misuse in patients presenting to an accident and emergency department. *EMJ* 2001;**18**:99–104.
30. **Touquet R**, Brown A. PAT (2009)—revisions to the Paddington alcohol test for early identification of alcohol misuse and brief advice to reduce emergency department re-attendance. *Alcohol Alcohol* 2009;**44**:284–6.
31. **Peters J**, Brooker C, McCabe C, *et al.* Problems encountered with opportunistic screening for alcohol-related problems in patients attending an accident and emergency department. *Addiction* 1998;**93**:589–94.
32. **Barrett B**, Byford S, Crawford MJ, *et al.* Cost-effectiveness of screening and referral to an alcohol health worker in alcohol misusing patients attending an accident and emergency department: a decision making approach. *Drug Alcohol Depend* 2006;**81**:47–54.
33. **SIPS: Screening and intervention programme for sensible drinking.** <http://www.sips.iop.kcl.ac.uk> (accessed July 2009).
34. **Crawford M**, 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.
35. **McCambridge J**, Day M. Randomized controlled trial of the effects of completing the alcohol use disorders identification test questionnaire on self-reported hazardous drinking. *Addiction* 2008;**103**:241–8.

APPENDIX 2

The Paddington alcohol test (PAT)²⁹

PADDINGTON ALCOHOL TEST

PAT 2003

 PATIENT IDENTIFICATION
 STICKER:

NAME :

D.O.B:

 Consider PAT for ALL of the **TOP 10 reasons for attendance**. Circle number(s) below for any specific trigger(s);

- | | | | |
|--|-------------------------|----------------------|------------|
| 1. FALL (inc. trip) | 2. COLLAPSE (inc. fits) | 3. HEAD INJURY | 4. ASSAULT |
| 5. ACCIDENT | 6. UNWELL | 7. NON-SPECIFIC G.I. | 8. CARDIAC |
| 9. PSYCHIATRIC (inc. DSH & OD, please specify) | 10. REPEAT ATTENDER | Other (specify): | |

 Proceed only after dealing with patient's 'agenda,' i.e. patient's reason for attendance.
 We routinely ask all patients with (state reason for screening) **about their use of alcohol**.

1	We routinely ask all patients in A&E if they drink alcohol - do you drink?	YES (go to #2)
		NO (end)

2	Quite a number of people have times when they will drink more than usual; what is the most you will drink in any one day? (Total units/day) =	<input style="width: 40px; height: 20px;" type="text"/>
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(Standard pub units in brackets; home measures often three times the amount!)

Beer /lager/cider	Pints (2)	<input style="width: 40px; height: 20px;" type="text"/>	Cans (1.5)	<input style="width: 40px; height: 20px;" type="text"/>	Litre bottles (4.5)	<input style="width: 40px; height: 20px;" type="text"/>
Strong beer /lager /cider	Pints (5)	<input style="width: 40px; height: 20px;" type="text"/>	Cans (4)	<input style="width: 40px; height: 20px;" type="text"/>	Litre bottles (10)	<input style="width: 40px; height: 20px;" type="text"/>
Wine	Glasses (1.5)	<input style="width: 40px; height: 20px;" type="text"/>	75cl bottles (9)	<input style="width: 40px; height: 20px;" type="text"/>		
Fortified Wine (Sherry, Port, Martini)	Glasses (1)	<input style="width: 40px; height: 20px;" type="text"/>	75cl bottles (12)	<input style="width: 40px; height: 20px;" type="text"/>		
Spirits (Gin, Vodka, Whisky etc)	Singles (1)	<input style="width: 40px; height: 20px;" type="text"/>	75cl bottles (30)	<input style="width: 40px; height: 20px;" type="text"/>		

3	How often do you drink <u>more than twice</u> the recommended amount?
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Once a week or more	PAT +ve	(every day? <i>Pabrinex</i>)
At least once a week	PAT +ve	
< 1/12	PAT -ve	(trumped by 4)

4	Do you feel your attendance here is related to alcohol?	YES (PAT +ve)
		NO (PAT -ve)

PAT positive indicates a need for referral to an alcohol health worker.

PAT negative negates a need for referral at this time.

APPENDIX 3**The rapid alcohol problem screen (RAPS-4 and RAPS-QF). RAPS-4¹³**

1. During the last year have you had a feeling of guilt or remorse after drinking? (**REMORSE**)
2. During the last year has a friend or family member ever told you about things you said or did while you were drinking that you could not remember? (**AMNESIA**)
3. During the last year have you failed to do what was normally expected from you because of drinking? (**PERFORM**)
4. Do you sometimes take a drink in the morning when you first get up? (**STARTER** or “**eye opener**”)

*Cut-point of the scale for identifying potential alcohol problem is ≥ 1 .

RAPS-QF ²⁶**RAPS plus:-**

QUANTITY: During the last year, have you had five or more drinks on at least one occasion?

FREQUENCY: During the last year, do you drink as often as once a month?

*Cut-point of the scale for identifying potential alcohol problem is ≥ 1 of RAPS-4 or both QF positive.

APPENDIX 4
TWEAK¹⁶

TOLERANCE	Can you hold six or more drinks?
WORRIED	Are your friends and relatives worried about your drinking?
EYE OPENER	Have you ever had a drink in the morning to get rid of a hangover?
AMNESIA	Have you ever awakened the morning after some drinking the night before and found that you could not remember a part of the evening before?
CUT DOWN	Have you ever felt you should cut down on your drinking?

*Cut-point of the scale for identifying potential alcohol problem is ≥ 3 .

APPENDIX 5**The alcohol use disorders identification test (AUDIT)²⁰****1. How often do you have a drink containing alcohol?**

(0) Never (1) Monthly or less (2) 2 or 4 times a month (3) 2 or 3 times a week (4) 4 or more times a week

2. How many drinks containing alcohol do you have on a typical day when you are drinking?

(0) One or two (1) Three or four (2) Five or six (3) Seven or nine (4) Ten or more

3. How often do you have six or more drinks on one occasion?

(0) Never (1) Less than monthly (2) Monthly (3) Weekly (4) Daily or almost daily

4. How often during the last year have you found that you were not able to stop drinking once you had started?

(0) Never (1) Less than monthly (2) Monthly (3) Weekly (4) Daily or almost daily

5. How often during the last year have you failed to do what was normally expected from you because of drinking?

(0) Never (1) Less than monthly (2) Monthly (3) Weekly (4) Daily or almost daily

6. How often during the last year have you needed a first drink in the morning to get yourself going after a heavy drinking session?

(0) Never (1) Less than monthly (2) Monthly (3) Weekly (4) Daily or almost daily

7. How often during the last year have you had a feeling of guilt or remorse after drinking?

(0) Never (1) Less than monthly (2) Monthly (3) Weekly (4) Daily or almost daily

8. How often during the last year have you been unable to remember what happened the night before because you had been drinking?

(0) Never (1) Less than monthly (2) Monthly (3) Weekly (4) Daily or almost daily

9. Have you or someone else been injured as a result of your drinking?

(0) No (2) Yes, but not in the last year (4) Yes, during the last year

10. Has a relative, friend, doctor, or other health worker been concerned about your drinking or suggested that you should cut down?

(0) No (2) Yes, but not in the last year (4) Yes, during the last year

***Cut-point of the scale for identifying potential alcohol problem is 8/40.**



Systematic review of alcohol screening tools for use in the emergency department

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