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## ORIGINAL ARTICLE

## A little nightclub medicine: the healthcare implications of clubbing

L C Luke, C Dewar, M Bailey, D McGreevy, H Morris, P Burdett-Smith

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**Objective:** To describe the scale and range of acute medical problems among patients who present to an inner city accident and emergency (A&E) department after attending nightclubs in Liverpool.

**Methods:** From April 1997 to April 1998, all patients identified as having attended a nightclub before their arrival at the department were included in the study. Information regarding their attendance was gathered retrospectively using a standard proforma.

**Setting:** A large, city centre, teaching hospital A&E department with an annual new patient attendance rate of over 95 000.

**Result:** 777 such patients were enrolled in the study (0.81% of all new attendances during the same period). This was probably an underestimate, as some eligible patients were not identified during the study. Predictably, most presentations were at the weekend between midnight and 08.00. Surprisingly, the commonest mode of transport to the hospital was an ambulance (38%, 298 of the total). Assault accounted for most presentations (57%, 443 of the total) and lacerations were the commonest injury (the face being most frequently affected). Alcohol was the commonest intoxicant overtly associated with the A&E department attendance.

**Conclusions:** Injury after assault is the commonest precipitant of hospital care among clubbers in Liverpool. Alcohol is the most important contributory factor, although illegal drug misuse is a considerable challenge in the clubs themselves. A number of measures such as (a) the introduction of unbreakable glass or plastic containers; (b) the elimination of glass from outside clubs; (c) the provision of high quality immediate medical care at larger venues; (d) the curbing of over crowding and cheap drinks promotions; (e) registration of doormen, and (f) targeted policing of the areas around nightclubs are urgently required to reduce the healthcare (and civic) burden of clubbing. The cost for these should be borne by the highly profitable clubbing and brewing industries. A national code of practice for clubs—already in existence voluntarily—should be made mandatory.

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It has been estimated that as many as 15.7 million people go to nightclubs ("clubbing") once or more each year throughout the United Kingdom while up to one million people are said to go clubbing at the weekend.<sup>1</sup> There is widespread acknowledgement of the prominence of clubbing in contemporary British youth culture and its financial and artistic success but there has also been growing media concern about the relation between nightclubs, illicit drug use, alcohol misuse, and violence. Despite this popular interest, few studies have examined the impact of clubbing on acute healthcare services and, in particular, on urban accident and emergency (A&E) departments.

In Liverpool, a maritime city in the north west of England, a vibrant club scene attracts visitors from all over the UK and Europe and, since 1995, there has been a working relationship between the best known club in the city, *Cream*, and the Royal Liverpool University Hospital. This collaboration came about as a result of the A&E department's public health strategy, which included a variety of measures, aimed at alleviating the growing workload of the department.

Previous preventative projects involved bringing persistent car offenders into the department, working with the Health and Safety Executive in tackling a local roller skating rink that was generating an exceptional number of locomotor injuries, and trials of a software screening package for occupational accidents. In 1995, a request for advice about providing health care for clubbers from the owners of *Cream* was received enthusiastically by the department's staff, as it offered an obvious opportunity to study an important and exciting aspect of British youth culture.

*Cream* (at the *Nation* venue in the centre of Liverpool) attracts nearly 3000 clubbers to its important dance nights when celebrity disc jockeys entertain clubbers with high intensity "house", "drum'n'bass", and "garage" music. A series of visits to *Cream* by two of the authors (LCL, MB) permitted an initial appraisal of the challenge of providing immediate medical care in a noisy, smokey and crowded environment. Another author (DM) provided a review of three years of his first aid work at the club, which provided a broader perspective on the hazards of clubbing (table 1), derived from the first aid records at *Cream* for the three years 1994 to 1996, which indicates crudely why clubbers attended *Cream's* first aid room and illustrates clearly the immediate impact of alcohol and substance misuse on clubs and the prevalence of minor soft tissue injuries among clubbers.

To obtain a more detailed assessment of the medical impact of clubbing, a formal survey of patients attending the A&E department of the Royal Liverpool University Hospital from the dozens of clubs in the city of Liverpool was undertaken. Particular note was made of patients' age, sex, injury type, reasons for and modes of presentation, use of healthcare resources, and the duration of the clubbers' encounters with the healthcare system. The aim of the study was to compile a descriptive study of this population of emergency department attenders, so that appropriate measures for harm and workload reduction might be considered.

## METHODS

For the purpose of this study, nightclubs were defined as those licensed premises that catered primarily for dancing and

**Table 1** Analysis of first aid presentations in Cream nightclub 1994–1996

Intoxication	433 (49)	Illicit drugs	253 (29)
		Alcohol	90 (10)
		Drugs and alcohol	90 (10)
Soft tissue injury	268 (31)	Laceration	174 (20)
		Haematoma	39 (4)
		Sprain	28 (3)
		Epistaxis	9 (1)
		Nail injury	3 (0.3)
		Burn	5 (0.5)
		Eye injury	9 (1)
		Ear injury	1 (0.1)
Collapse	66 (8)	(not intoxicated)	66 (8)
Respiratory	47 (5)	Asthma	36 (4)
		Hyperventilation	9 (1)
		Apnoea	2 (0.2)
Neuropsychiatric	26 (3)	Seizure	23 (3)
		Distress	3 (0.3)
Unwell	38 (4)	(various)	38 (4)
Total	878	Total	878
Data shown as numbers (%).			

drinking by young people, remained open until the early hours of the morning, and were popularly thought as belonging to contemporary club culture (compared with conventional bars, hotels, social clubs, or illegal “shebeens”).

The study lasted for one year, from April 1997 to April 1998, and was preceded by a three month trial period in which awareness of the survey (and its purpose) was raised and a practicable system of identifying eligible patients was established.

Clerical staff at the A&E department reception desk were asked to identify, by questioning and reference to a list of nightclubs within the local area, all those patients attending the department who had been in (or just outside) a local nightclub when their acute illness or injury had arisen, or whose (sometimes delayed) presentation was otherwise felt to be related to a nightclub attendance. The relevant records were flagged in the department’s computer system, permitting later retrieval for analysis.

A standard proforma was used for all cases and additional data were obtained from outpatient records and ambulance sheets. Patients were discarded as ineligible for the study if it was felt that their presentation was not in fact related to an attendance at a local nightclub (for example, if they had been in an ordinary public house, the British Legion Club, or a domestic party).

## RESULTS

Between April 1997 and April 1998, 1012 patients attending the A&E department of the Royal Liverpool University Hospital were initially identified as “nightclub cases”: however, of these 235 were found to be unsuitable leaving a total of 777 patients eligible for study. Patients were deemed unsuitable for inclusion if the incident responsible for their attendance at hospital did not occur inside or in the immediate vicinity of a recognised nightclub. Eligible patients accounted for 0.81% of the 95 484 new attendances at the department during the study period. The male to female ratio of eligible patients was 1.5:1, with an age range of 16–59 years (mean 25). Most patients were between 18 and 25 years of age (441, 57% of all cases).

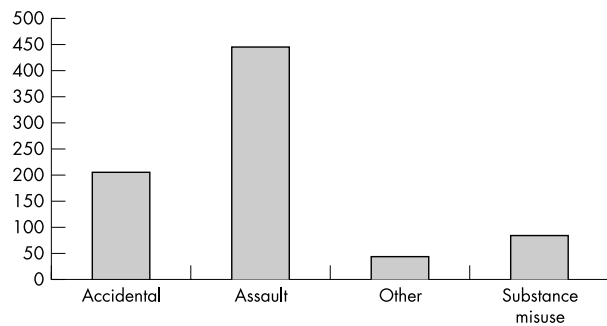
The most commonly used mode of transport to the hospital was an ambulance (for 298, 38% of the total), followed by taxi (233, 30%), private vehicle (136, 18%), on foot (64, 8%),

escorted by police (20, 3%), and public transport (8, 1%). In 2% (18) of cases no mode of transport was recorded. Most patients arrived within six hours of the event that precipitated their hospital visit (691, 89%). Most presentations were at the weekend (497, 64%) and between the hours of 00:00 and 08:00 (613, 79%). The average length of stay for patients within the department was 2 h 16 min.

On arrival in the A&E department, 32% (249) of patients were reported by medical or nursing staff as being clinically intoxicated with alcohol and 11% (87) had such intoxication as the sole or primary diagnosis. Radiological investigations were required in 34% (263) and urine toxicology in 2% (13) of patients. A full blood count and biochemistry were required in 5% (40) and 3% (31) of patients respectively. Nearly 10% (77) were admitted into hospital for at least one night. Thirty six per cent (278) of patients required follow up after their initial presentation to the A&E department, either at the hospital or by their general practitioner.

Most patients presented with lacerations (39%, 306) or soft tissue injuries (26%, 205). The most common site of laceration was the face (46%, 141), followed by the scalp (20%, 62) and the hands (16.5%, 50), with the remainder comprising lacerations to the lower limbs and abdomen. Soft tissue injuries occurred most commonly on the face (43%, 88), the hands (26%, 53), the lower limbs (23%, 47), and the neck (8%, 17). Head injury accounted for 15% (or 120) of presentations.

Figure 1 shows the four main categories of presentation. Victims of assault were recorded as having consumed a considerable amount of alcohol on 24% of occasions (107 cases). Patients were attacked with glass bottles or receptacles in 84 (19%) of assault cases and “bouncers” (doormen) were felt to be responsible for 49 (11%) of all assaults. Of those patients representing with accidental injury, 57 (28%) were injured because of broken glass and 24 (12%) fell downstairs. Fifty one (25%) of these patients were clinically intoxicated with alcohol. A total of 87 patients (11%) presented purely as a result of intoxication with alcohol or illegal drugs. Overt, clinically suspected intoxication with alcohol accounted for 55% (48) of these presentations. The remainder were associated with the use of familiar recreational drugs, for example, methylene-dioxy-methamphetamine (MDMA) or Ecstasy (16%, 14), amphetamines (10%, 9), drug cocktails (8%, 7), gamma-hydroxy-butyric acid (4.5%, 4), cocaine (3.5%, 3), and amyl nitrate (2%, 2). Of these intoxicated patients, 71%



**Figure 1** Category of presentation.

(62) arrived by ambulance compared with 155 (35%) assault victims and 67 (33%) of accident victims. Twenty four (28%) intoxicated patients required admission compared with 40 (9%) assault victims and 14 (7%) victims of accidents. However, only three (4%) intoxicated patients were deemed medically to require follow up, compared with 88 (43%) accident cases and 186 (42%) assault cases who required review either by their general practitioner or at the hospital.

## DISCUSSION

Although large numbers of British people go clubbing on a regular or occasional basis in the UK, there has been no previous attempt to document the degree and range of health problems in this population or their impact on acute hospital services. The few relevant published papers have tended to dwell on prehospital care at large music festivals or substance misuse among clubbers.<sup>2 3</sup>

There has been great popular anxiety about the use of Ecstasy in club culture, especially in the early 1990s, but we have found that alcohol—not substance misuse—and alcohol related assaults account for the majority (57%) of clubbers' use of the medical emergency services. Assaults were associated with overt intoxication in a quarter of the assault victims in this study although this figure relied on recognition and documentation of overt patient intoxication by medical or nursing staff.

Previous UK studies have provided good evidence of alcohol use in 50%–60% of assault cases.<sup>4 5</sup> Alcohol use is almost universal among young British people. Indeed, binge drinking (defined as drinking one half the "sensible" number of units per week in one session) is a central part of socialising for a quarter of young adults in the UK.<sup>6 7</sup> Injury in urban violence, in young adults, has been directly associated with such binge drinking and the links between such alcohol misuse, antisocial behaviour, and subsequent risk to health are well documented.<sup>8–12</sup>

Patterns of alcohol use seem to become established in the middle teenage years, with 78% of British school pupils aged 15–16 reporting personal intoxication with alcohol at some time and 50% having consumed five or more drinks in the 30 day before being surveyed.<sup>13</sup> This age group has also shown an overall increase in the frequency of drinking since 1989–90 and inevitably this is reflected in club culture, which tends to attract young people, particularly between 18 and 25 years of age. Unfortunately, comparable levels for substance misuse will probably soon be reached. Clearly, urgent preventive measures need to be aimed at this group.

There was an 8% increase in the number of offences of violence against the person in England and Wales between July 1996 and June 1997,<sup>14</sup> and there was a 5.5% increase in the number of claims made to the Criminal Injuries Compensation Authority between 1995 and 1996.<sup>15</sup> This implies that over a quarter of a million such cases were reported to the police but recognised under reporting of violence in the UK (by up to 70% of victims) means that the true picture is probably much

worse. Some studies have shown that violence in England and Wales has risen by between 120% and 240% since 1981 and this trend shows no signs of slowing down.

Such violence is apparently a paradoxical phenomenon: as Britain has become more affluent over recent years, A&E departments have seen *more* not fewer cases of assault.

An unpublished survey of assault presentations at the A&E department of the Royal Liverpool University Hospital, for instance, revealed that there were 386 such cases in August 1998 and 420 cases in August 1999.

One of the reasons postulated for the recent resurgence of violence in the UK is the greater disposable income young people have to spend on excessive amounts of alcohol with a consequent rise in intoxication related violence.

Violence is not the only problem with intoxicated clubbers: approximately 20% of observed ambulance misuse in North America has been found to be related to alcohol intoxication,<sup>16</sup> while in our population of UK clubbers, 71% of patients who were intoxicated with either alcohol or illicit drugs arrived by ambulance, but only 28% required admission.

Although alcohol was responsible for most presentations because of intoxication, a significant number were associated with overt illicit drug use. The recognition of recreational drug use relied on self reporting and may therefore be a significant underestimate. Ecstasy was the most commonly used drug during the period of this study: this was in keeping with the link between the dance/club scene and MDMA use found in other studies.<sup>3</sup> The total number of patients presenting as a consequence of Ecstasy use correlated closely with a previous study based in a London A&E department.<sup>17</sup> Knowledge and experience of Ecstasy and amphetamines by young people has been shown to be on the increase.<sup>18</sup> Documents such as the London Drug Policy Forum<sup>19</sup> have highlighted the need for improved facilities within clubs (through greater provision of "chill out spaces", freely available water, and informal monitoring for adverse effects of drugs by clubbers themselves and club staff).

It has been estimated that 9% of assault victims are attacked with broken or intact glass receptacles,<sup>6</sup> but because of under reporting, the real picture is again unclear. It is of course important to remember that in addition to the considerable acute healthcare costs of managing glass related injuries, over a quarter of victims of facial wounds experience a serious post-traumatic stress reaction, requiring long term follow up.<sup>20</sup>

Glass is not just a convenient weapon. A survey of bar workers in 1994, for example, indicated that 40% of them had sustained accidental glass related injuries (mostly while stacking and washing), and one third of them needed treatment in the A&E department.<sup>21</sup> It is worth noting that 31% of the cases of accidental injury in our study were caused by broken glass.

Clubbing is the defining culture of young people in millennial Britain. Its influence has spread to most North American and European cities, as well as the Balearic Islands and Cyprus, the destination for thousands of British clubbers each summer. Originally the point of collision between 1970s *Disco* and 1980s *Rave*, clubs have become the platform for a multi-million pound business that has embraced the music, fashion, brewing, and advertising industries. Club—"dance"—music already dominates evening radio playtime, and club culture increasingly influences contemporary literature and cinema. Clubs have also arguably become the most important outlets for illegal drug trade.

Despite this extraordinary state of affairs, what goes on in the clubs is often remarkably old fashioned. The accent is on fantastic but superficial decor, (very) loud music, and "having a good time". In reality young people continue to gather noisily outside clubs as they have always done, in all their finery, whatever the weather. They drink too much and take drugs—often but not necessarily—before they are allowed into the clubs by doormen.

Safety features—ranging from secure handrails on steep stairs or “chill out” facilities (open spaces with a reasonable amount of available oxygen) to close circuit television and adequately equipped first aid rooms—are typically at a premium. Although the proportion of clubbers coming to harm—in Liverpool and elsewhere—is actually small there are “rogue” clubs that consistently generate work for the police, licensing authorities, and hospitals. Typically such clubs are licensed premises that regularly offer discounted drinks, whose bar staff continue to serve obviously intoxicated customers, and where management turns a blind eye to over crowding. Such venues are the most probable settings for intoxication, its associated hazards, and violence.<sup>22</sup>

If drinking and substance misuse patterns are to be changed for the better, it would seem appropriate to target school pupils in their teens or even earlier. However, it would be naive to think that such educational measures will be anything other than slow and painstaking. In the meantime other initiatives should be urgently undertaken to minimise the hazards of clubbing. There is a role for increased training for bar staff in recognising intoxicated customers and limiting further alcohol intake. It is encouraging to note that programmes are being started to educate and warn secondary school pupils about the risk of facial injury from drinking and fighting.<sup>23</sup> Clearly, alcohol is not the only factor in violence within clubs: 9% of assaults in our study were allegedly caused by “bouncers”, and it is hoped that initiatives such as the training and licensing scheme promoted by the National Association of Registered Door Supervisors will reduce this figure. The commonest conditions requiring medical attention among clubbers in this study were lacerations (39% of patients), especially facial, which supports previous recommendations to introduce toughened glass or plastic containers.<sup>24</sup>

There are easily identifiable initiatives that could significantly reduce the impact of clubbing on the NHS. They include the use of unbreakable drink containers, the elimination of discarded glass in or around clubs, a national registration and training scheme for club doormen, improved first aid provision at larger venues, limitations on crowding in clubs, and the abolition of drinks promotions that target young people. All of these measures form the basis of voluntary codes of practice (such as that published by the London Drug Policy Forum, *Dance till dawn safely*). We suggest that they should urgently become a national legal requirement if good clubs are to thrive.

### Contributors

CL initiated and designed the study. CL and CD wrote the paper, discussed core ideas and appraised the literature. CD undertook the literature search and data collection. MB, DM and HM assisted with data collection. PBS proof read the manuscript and discussed core ideas. CL and CD will act as guarantors for this paper.

### ADDENDUM

We are pleased to report that all of our recommendations have now been acknowledged in *Safer Clubbing*, a comprehensive guidance booklet published in early 2002 by the Home Office and the London Drug Forum (ISBN 1-84-082780-7; [www.drugs.gov.uk](http://www.drugs.gov.uk)). The authors cite the experience and principles described in this paper highlighting—we believe—the important and growing role of emergency departments in the UK as public health observatories.

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