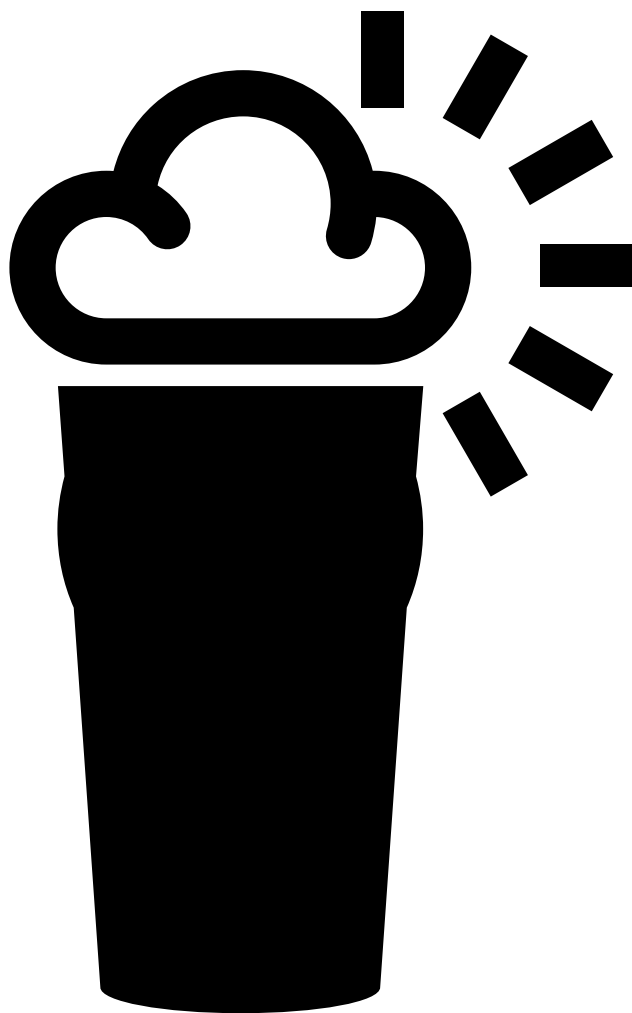


Design Out Crime

Using design to reduce injuries from alcohol related violence in pubs and clubs



Contents

2 The problem

Foreword

4 A drinkers history

The problem

8 Adolescents and alcohol

11 The violence

12 The victims

15 Glassing scenarios

16 Alcohol misuse

17 The injuries

Accidental injury

18 The time and the place

Material matters

22 Pint sized facts

History of the pint glass

23 Current glass types

24 Glass

26 Plastic

27 Polycarbonate vs. glass

31 Alternatives to glass

32 Case study

34 Promotional potential in a glass

36 Case study

Designing a safer future

40 How designers can help

42 How designers work

46 Endnotes

Design Out Crime is an initiative from the Home Office's Design & Technology Alliance Against Crime and the Design Council. The Alliance is tasked with bringing about innovation and encouraging others to 'think crime' in the first stages of design, planning and product development. It is comprised of ten experts from the world of design, industry and law enforcement.



The problem

973,000

incidents of alcohol-related violence each year in the UK

£2.7bn

costs to NHS for alcohol-related harm, including assault injuries

87,000

violent incidents involving glass

5,500

estimated glassings

Foreword

Alan Campbell

There are nearly 1 million violent incidents each year in the UK where the victim believed the offender to be under the influence of alcohol¹, absorbing a significant amount of police time and an estimated £2.7bn in NHS funding for alcohol-related harm, including assault injuries.²

The use of glassware in alcohol-related violence is a particular concern. Glasses and bottles used as weapons can intimidate victims, bar staff or bystanders and cause serious injuries.

As a blunt weapon, for instance in an intact bottle, glass can cause significant physical damage.

But when glass is broken and used as a sharp weapon the potential damage is hugely increased. Glass-inflicted injuries to the eyes and face often require stitches or surgery and can result in heavy blood loss and even loss of sight.

There are an estimated 87,000 violent incidents involving glass each year in the UK.³ Around 5,500 glassings are reported annually.⁴ That's 100 every week. In cases that are reported it is most commonly pint glasses which are broken and used as sharp weapons. And so it is the redesign of the pint glass that the Design & Technology Alliance Against Crime has focused on to make it less likely that they could be used by violent attackers to inflict serious injuries.

This is not an attempt to redesign the British pint glass for the sake of it. The Design Out Crime project has the potential to reduce the number of glassings and the number of accidental injuries bar workers suffer from broken glass.⁵

The Design Out Crime project is developing safer alternatives to traditional glasses by engaging industry, trade and consumers in creating solutions. After consulting the experts on the problem (the victims, publicans, materials specialists, emergency services and drinks brand owners) the Alliance Against Crime has appointed a team of specialist designers at agency Design Bridge to prototype options for a safer pint glass. This booklet shares all the research and insights they have worked with so you can understand the complex issues around glassings and alcohol-related violence in the UK.

There are still plenty of other opportunities for designers to create their own solutions to alcohol-related violence and for the drinks industry to commission them. Doing so could help make safety from crime a selling point and make it harder for the few people who behave violently when they're drunk to injure others with the vessels they drink from. Everything we've learnt is in this book. What could you do with this information?

We believe there is a fantastic opportunity to offer both a safe and enjoyable drinking experience through innovation, the use of new materials and creative design.



Alan Campbell is the Parliamentary Under-Secretary of State responsible for crime reduction.

A drinkers history

Peter Haydon

At most points in history it has been possible to understand alcoholic drinks in terms of the job they did. First they allowed people to drink water safely without dying of cholera or typhoid. Then they were nutritional staples. Later they were social lubricants and cultural cohesives.

Modern society, global manufacturing and taxation, and the relegation of 'drink' in the popular mind from local produce to Fast Moving Consumer Goods (FMCG) status, has removed many of these justifications for the existence of intoxicating drink. Increasing popular alienation from matters culinary, plus production realities, mean that intoxication is all that numerous brands have to offer. We now design drinks to meet the tastes of 'market sectors' rather than relying on the maturity of the individual and the increasing sophistication of palate that is supposed to come with age to bring an appreciation of complex flavours and the effects they have. An undemanding market sector can only be satisfied with drinks that are undemanding. If intoxication is all that is demanded then, in this, the best of all possible worlds, the market will supply.

This is a Victorian view as much as a contemporary one. It was the censorious attitudes of many Victorians that served – uniquely in Europe – to divorce eating from drinking, with profound consequences for modern Britain. Similarly it was the Victorian introduction of mass produced glass that

shaped the modern way we drink. Porter served in pewter looked poor compared to pale ale in glass. People started to 'drink with their eyes' and the lighter, more industrial beers were increasingly drunk for refreshment rather than sustenance. Yet when the role of drink and the type of drinks consumed changed, the amount we drank didn't and this had some extreme effects on our behaviour.

Alcohol has always been related to violence. It may seem that the risk of encountering violence on a night out is greater in 2009 than it was in 1999, but is it greater than in 1939 when 'razor gangs' were the dread of Glasgow, or 1959 when they were even more widespread, or 1809 or 1709 when the term cut-throat didn't just apply to a type of razor? As an historian of drink my suspicion is that things haven't changed that much. And therein lies the root of many of the perceived problems we face today.

This is what makes this Design Out Crime research so refreshing. It rejects the usual premise that the appropriate response to amending other people's behaviour is to tell them they shouldn't do it – what one may term the 'Catholic' or 'Fiscal' response, which has misinformed so many temperance minded measures. (Measures which have done little to change popular behaviour from century to century.)

The Design Out Crime project is playing its part by investigating the issues and delivering an informed solution by creating the next generation pint glass. This project is much more than merely an assessment of whether polycarbonate is better than glass. It recognises that

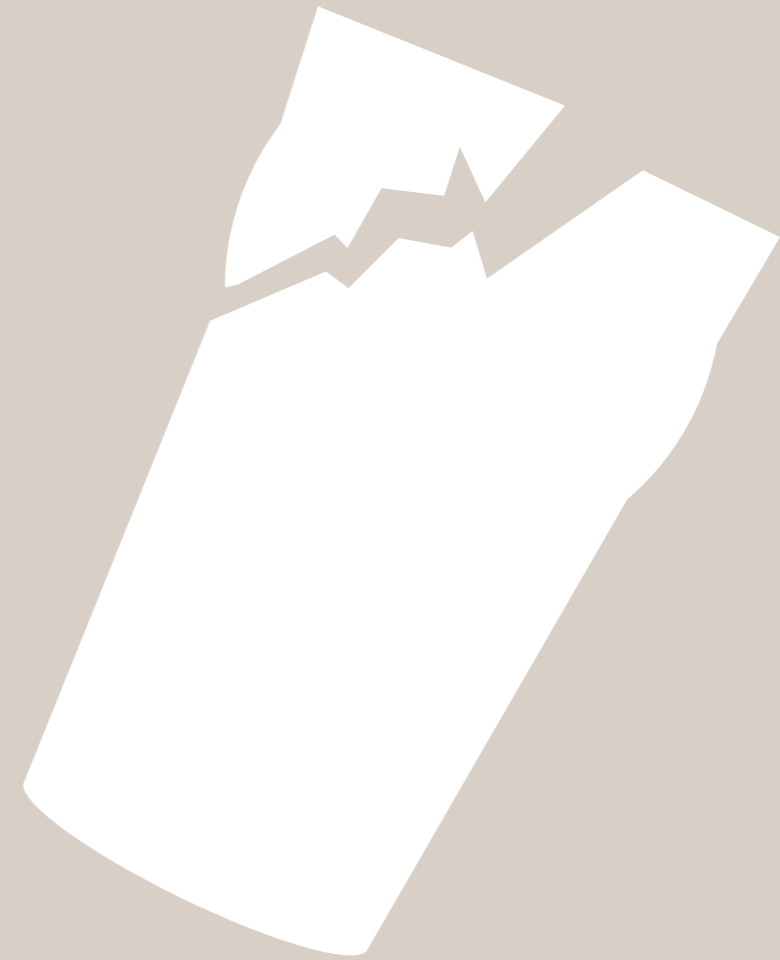
effective reduction of injuries caused by glass in and outside licensed premises starts with an assessment of what people are likely to do, and, with that in mind, considers the alternatives.

Its research understands what's been tried in the past and it will learn from mistakes, when others haven't. In the episode of Panorama of 11 August 2009 the BBC mocked up a bar in Oldham to suggest that people would have to queue in 'post office' fashion to make them behave more responsibly. In 1915 when the government first directly interfered in the drink trade by nationalising pubs in strategically sensitive parts of the nation, they closed 53 pubs in the Carlisle area and opened three. The first of these was the Gretna Tavern. Previously it had been a post office. No one liked it much. People are just as likely to resent an imposed solution in 2009 as they were in 1915. Any change to the way that we drink that makes drinking safer will only be accepted if it is seen first and foremost as an improvement. That is the design challenge.



Peter Haydon is author of *An Inebriated History of Britain*, the story of the evolution of drinking and drinking places in the UK.

1. The problem



Adolescents and alcohol

Most young people do not drink excessively or come to any harm through drinking, but there is a significant minority who do and this is a big concern.⁶

Government has recognised the need for action on this issue, with the launch of the National Alcohol Strategy⁷ and the Youth Alcohol Action Plan. The effects of young people drinking are⁸ felt across society. They are more likely to become victims of crime or engage in unsafe sexual behaviour. Their school work suffers, as do their relationships with family and friends. Local communities have to deal with antisocial behaviour and crime, and society as a whole faces huge bills for health and policing as professionals deal with the fallout from problematic youth drinking, including thousands of alcohol-related hospital admissions each year for under-18s.

Nearly 10,000 11–17 year-olds are admitted to hospital each year in the UK because of alcohol consumption.⁹

By age 15, 37% of young people drank at home, 34% outdoors, 38% at someone else's house and 45% at parties.¹⁰

The cost to the taxpayer for the criminal justice system to deal with alcohol-related crimes by under-18s is estimated at between £915m and £1.15bn.¹¹

The overall cost to society from the problems caused by excessive alcohol consumption, related crime and anti-social behaviour (by both young people and adults) has been estimated at between £17.7bn and £25.1bn.¹²

A survey of 15-16 year-olds¹³ found that UK teenagers came at or near the top of the international league for binge drinking, drunkenness and experiencing alcohol problems.

A quarter of UK teenagers say they have drunk five or more drinks in a row three times or more in the month preceding the survey.¹⁴

In 1997-98, there were 6,667 admissions of under-18s to NHS hospitals in England for alcohol-related reasons. In 2005-06 this increased to 8,889.¹⁵

Up to 1,000 young people a week suffer serious facial injuries from drunken assaults. 18,000 young people are scarred for life each year.¹⁶

1,000

young people a week suffer serious facial injuries from drunken assaults

18,000

young people are scarred for life each year



Source: www.gettyimages.co.uk © Getty Images



‘We are still serving a mind-altering substance in a potential weapon.’

Marjorie Golding
*mother of glassing assault victim
and founder of the POP Campaign¹⁷*

The violence

Much of the violence in licensed premises happens at flashpoints, when people have been drinking and something is said or done that makes them see red and react violently on the spur of the moment.

The pubs and bars where they have been drinking are filled with dangerous implements that can readily become weapons. The glasses and bottles that are integral to the drinking environment are easy to grab hold of and they can inflict serious injuries.

Attacks where a glass or bottle is used as a weapon are called glassings. In glassing incidents the perpetrator either thrusts a glass directly at a person’s face or body, or across it in a slapping-style motion. A bottle’s design means it lends itself to being used as a blunt object to club someone because people can hold the bottle’s neck and use the body to hit out. Another common glassing approach is to throw the bottle or glass so it becomes an exploding projectile.

Pint glasses are the most common glass weapon in reported assaults.

Glass injuries are a serious problem in the UK, with approximately 5,500 glassings reported each year¹⁸, and glasses or bottles being used in 5% of all violent crime.¹⁹

Although the bottle or glass is occasionally broken before being used in an attack, it is far more common for assailants to use them intact, although on impact they often break and can then inflict more serious injuries.

Bottles often cause blunt trauma and don’t break, so the injuries they cause are less likely to need medical treatment.

Drinking-glass injuries are often more serious and likely to include eye and facial injuries.

The victims

Glassings can potentially occur in any public drinking environment. There are age trends but they match trends for violent crime and for timings and levels of drinking in public.

The 2008/09 British Crime Survey²⁰ for England and Wales reports that 36% of stranger violence and 23% of woundings take place in or around pubs and clubs.

In a study of assaults with bar glasses and bottles²¹ it was found that significantly more women than expected inflicted injury on other women, but there were also fewer female-to-male assaults and fewer male-to-female injuries than expected.

A study by the Scottish Centre for Crime and Criminal Justice Research found that while clubs with younger clientele were more likely to have violent outbreaks, those with older clientele were most resistant to getting rid of glass completely.

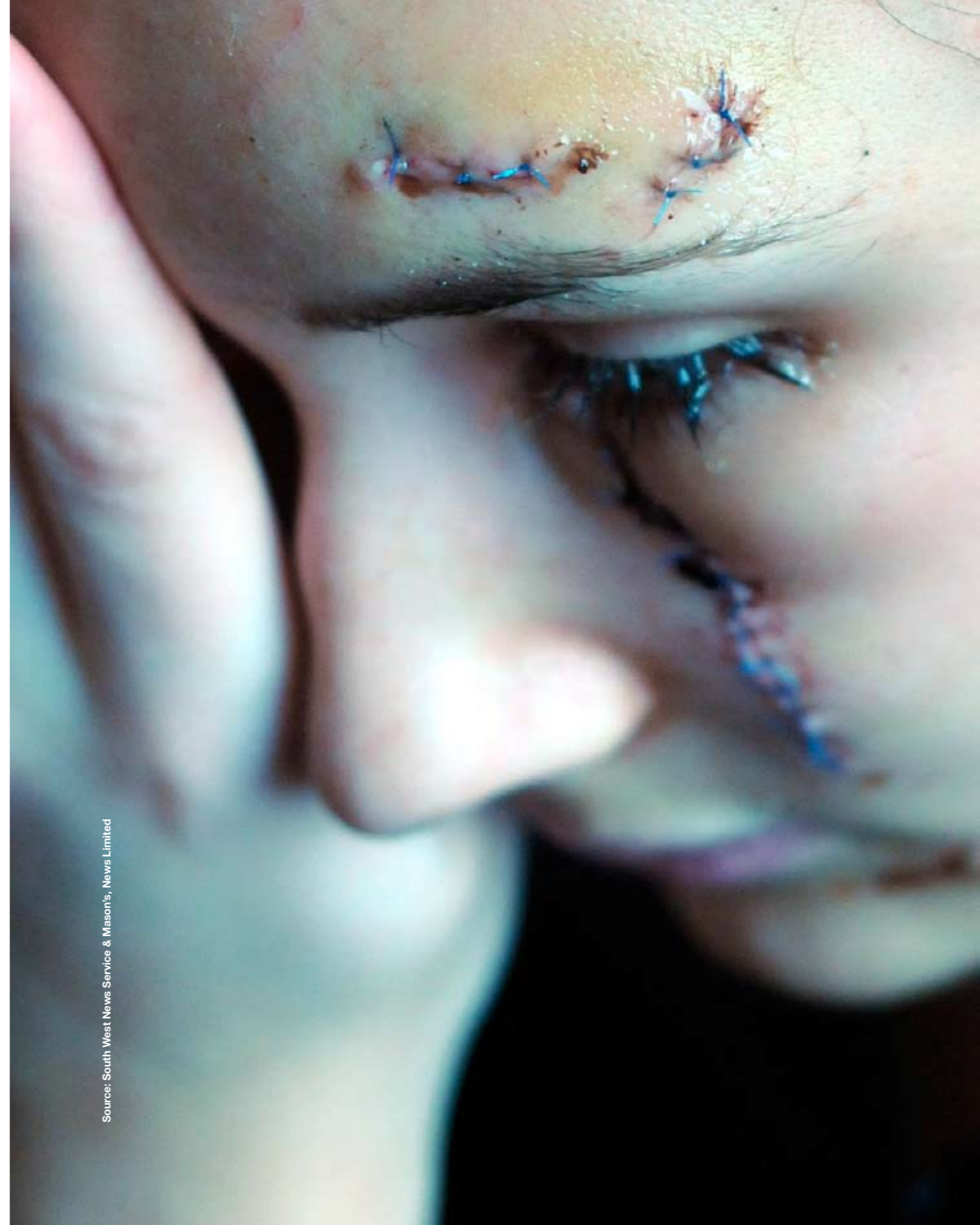
There is often a blurring between victim and assailant in alcohol-related assaults, with the perception of who the victim is shifting through the course of the altercation. Often, the assailant reports that the motivation for the assault was being upset by someone, acting in revenge or acting in self-defence. At times, glass or bottles are seen as an 'equaliser', used because the person feels threatened by someone who they believe is likely to harm them.

The consequences of being glassed can be complex. Beyond the physical healing process, victims, and often assailants, have to suffer long after the assault, dealing with social and psychological factors.

It is difficult to pinpoint a definitive statistic for the number of glassing assaults, as the majority go unreported, making police records under-representative of the true scale of the problem. Hospital admissions offer a closer representation, but this too is incomplete as victims may not accurately report the cause of the injury, and many decide the injury is not significant enough to go to a hospital in the first place.

'Some people can be so drunk they don't even realise a glass is in their hand.'

Male bar worker



Source: South West News Service & Mason's, News Limited



Source: www.gettyimages.co.uk © Getty Images

Glassing scenarios

While glassing incidents may have some things in common, such as crowding in the pub, rivalry, self-defence, sexual jealousies, revenge and mistaken identity, they are instigated by, and happen to, people of many different ages, of both sexes and in places that aren't renowned for violence.

These descriptions of glassing incidents feature real events, but some of the names have been changed to protect the victims' identities.



John, 44, hadn't seen his wife Liz for nine months until he spotted her at a table in a Glasgow nightclub with another man. Liz had only recently met this new man but John accused him of having a sexual relationship with his wife and hit him on the neck and upper body repeatedly with a glass which soon shattered and inflicted deep wounds.



PhD student **Liam** was exchanging lively banter with 29 year-old Lisa in a Stockport bar but the conversation turned sour. Lisa was offended by one of Liam's comments and she threw the wine from the full glass she was holding in Liam's face. When Liam laughed in response she hit him twice in the face with her glass, dragging it down his cheek and wounding him in five places.



When **Laura, 21**, asked another girl on the dance floor of a club in Manchester to stop jostling, the girl smashed the glass she was holding into Laura's face. She inflicted two gashes on Laura's face which narrowly missed her jugular vein but left heavy scars.

Alcohol misuse

£8 – £13bn

estimated cost of alcohol-related crime²²

70%

of A&E attendances between midnight and 5am are alcohol-related.²³

The injuries

Glass as a blunt weapon can cause significant damage. As a sharp weapon the potential for damage is hugely increased, and a very high ratio of glasses and bottles do smash into sharp pieces on impact.

Accidental injury

Accidental injury is also a concern and accounts for a large percentage of glass injuries. There is obvious potential for injury from falling glass in multi-level venues, and from breakages. Also, there is a significant number of accidental injuries to staff. A survey of bar workers in 1994 showed that 40% had sustained accidental glass-related injuries (mostly while stacking and washing), and one third of them needed treatment in A&E.²⁴

A knife wound is often continuous, predictable and relatively neat; broken glass, however, has ragged edges and uneven surfaces so it gouges rather than slices, which often leads to very messy wounds, followed by very messy scarring.

Broken glass injuries are more likely to involve the victim's eyes, which can dramatically increase the severity of the injury and can lead to blindness.

In a study of five UK A&E departments it was found that 75% of glass assault injuries were to the face, that eye injuries were infrequent but often serious and that, in the opinion of surgeons, 75% of injuries were likely to result in 'very noticeable' or 'noticeable' scarring six months later.²⁵

Bottle injuries tend to be inflicted on a victim's scalp. Facial injuries are more likely to have been inflicted by broken drinking glasses. Drinking-glass injuries are almost twice as likely as bottle injuries to need stitches.²⁶

The time and the place

The majority of glassing assaults happen when people are in or around bars and clubs, and they increase proportionately with the number of people (and the quantities of alcohol they drink).

The problem environment is typically one where so-called vertical drinking happens.²⁷ This means large pubs such as the 'super-pubs' found in most cities, which can hold around 2,000 people, or nightclubs where there is more potential for violence to occur at flashpoints.

Glassing incidents are largely confined to the weekend when extended drinking patterns draw out into the night.²⁹

The entertainment areas of town and city centres are the most common location for violent offending.

Violence can also spill out onto the streets. The journey from pub or club to public transport or home often sees people congregating in areas where the potential for trouble still exists, in that streets can also be crowded with boisterous and at times competitive people who are still drunk.

'The timings of these incidents are no surprise — Friday and Saturday nights, late evening into early morning.'

Sergeant Mark Worthington
Safer, Stronger Northampton Partnership

48%

violent offences occurred between Friday 6pm to Monday 6am.²⁸

2. Material matters

**GLASS
WITH CARE**

Pint sized facts

Pint glasses were traditionally straight edged and had a tendency to crack or chip when stored together or during washing. In 1960 the 'Nonic' (no nick) glass, with a strengthened bulge an inch from the rim was invented, allowing glasses to rub together without being damaged.

A pint glass holds 568ml of liquid (20 fluid ounces, an Imperial pint).

Approximately 126 million pints of beer are served each week in the UK. The average British male will drink 11,600 pints of beer or lager in his lifetime.

In a pub the average life of a pint glass is three months.

Most British pints are drunk out of French glasses made by Cristallerie d'Arques in Calais. They have their own stamp number: 2043.



The Tulip

An upside down pear shape where the top is fatter than the bottom. The shape helps drinker grip the glass and the space at the bottom makes separating stacked glasses easier. Some say the shape also improves the aroma of the drink.



Straight-edged

This pint glass tapers gently from a wide top to a narrower base, with no change to the flat sided surface.



Mug

Made from heavy, dimpled glass with an added handle for easy drinking, these glasses are seen as the traditional beer drinker's choice.



The Nonic

A bulge about an inch from the top of the glass stops the rims knocking against each other and chipping when they're being carried or stored. The bulge also helps drinkers keep a good grip on their pint.

Current glass types

Each to their own

There are increasing variations on the traditional forms, as foreign imports become more popular. Slight waists, wide mouths, stems, and extra height are all features designed to enhance specific qualities of the particular drink.

But they must all have one thing in common. UK law dictates that a pint glass must be exactly that, or an exact part of a pint. This is typically achieved through use of a certified glass with an official marking.

A brief history of the pint glass

Ancient history

Early ale drinkers often drank through straws to avoid swallowing grain husks left in the beer.

The Romans favoured horn drinking vessels.

1400s

Pewter or silver beakers were the vessel of choice among the wealthy.

Wood or earthenware (both porous materials) were used by the masses. But they broke easily and absorbed the stench of beer with each use.

1500s

The European 'stein' container with a handle and a hinged lid was designed as a sanitary measure to keep out flies following an explosion in insect numbers after an outbreak of bubonic plague. Steins made of stoneware, pewter and other materials would remain the most popular beer vessel for the next 300 years.

1700s

Clear glass was first used to show off the clarity and colour of the costliest beers, compared to the cloudy, sediment-laden cheaper varieties.

1900s

Up to the end of the First World War the English pint mug was a china pot in a shade of pink with a white strap handle.

Mass manufacture of glasses saw the invention of a number of pint glass shapes: the conical, the tulip, the fluted glass, the dimple mug, the straight edged and the 'Nonic' (no nick) glass.

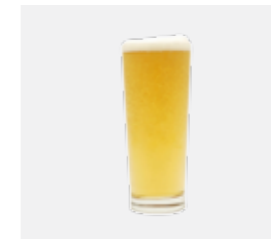
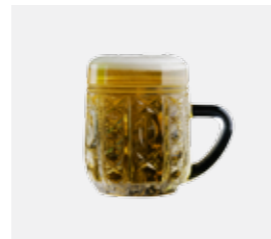
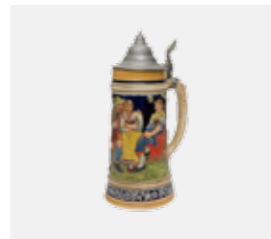
2000s

Pint glasses made from safety glass (also known as shatterproof glass) are introduced to the UK.

Polycarbonate pint glasses (toughened plastic) are released to cater for outdoor drinking.

2010

The Design & Technology Alliance Against Crime unveils the next generation pint glass.



Source:
www.istockphoto.com
All images © iStockphoto

The use of toughened glass to cut the number of injuries has become a much-debated topic among people from drinkers, licensees and the police to licensing officers, plastic surgeons and drinks brand managers.

Glass

Glass pint vessels are made from either annealed or toughened glass.

Key strengths

- User research suggests drinkers perceive it to be higher quality than plastic.
- Glass is inert, so food, drinks, medicines or cosmetics remain untainted by contact.
- Good recycling infrastructure is already in place for glass.

Key weaknesses

- Glass has low impact resistance. It breaks into potentially dangerous shards.

Toughened glass

Toughening involves the controlled, rapid cooling of glass during manufacture with the aim of deliberately inducing compressive surface stresses into the glass. These stresses help to increase its strength.

The compressive energy stored in the glass influences how it reacts to breaking, so that as soon as a fracture develops it continues throughout the glass in all directions causing it to fragment into small pieces that are safer.

The speed of cooling determines the degree of toughening and hence the degree of strength and fragmentation.³⁰

In 1997 the Brewers and Licensed Retailers Association, (now the British Beer & Pub Association) recommended the use of toughened glass to all members.³¹ Since then there has been a steady increase in the use of toughened glass drinking vessels in response to

concerns over the safety of annealed glass (see below). The amount of toughened glass currently in circulation is difficult to judge, partly because of a lack of recognisable labelling.

Despite a handful of studies documenting the positive impact of toughened glass, research also points to a number of failings, and why the material is far from the ideal 'safe' glass.

The curvaceous form of drinking glasses currently renders the toughening process uneven and unreliable, particularly in relation to more delicate stemware. Belgian glass manufacturer Durobor recently claimed to have developed a toughening technique that can be applied to all glasses, whatever their shape, but this is yet to be proven and widely adopted. A nationally approved standard to regulate quality of toughening is currently in the pipeline, but until it is confirmed the level and consistency in toughening will vary according to manufacturer.

Toughened glass has also been widely reported to 'spontaneously shatter'. Warburton and Shepherd (2000), in a six-month study of 1,229 bar workers, reported that toughened glassware significantly increased the number of accidental injuries to staff. The authors therefore advocate stricter quality control in the manufacture of toughened glass.³²

Unfortunately the toughening process does not necessarily ensure longevity, and scratches and knocks that occur with use quickly compromise the glass's impact resistance.

Furthermore, British Glass says the term 'toughened glass' is in itself misleading, and toughened glass is not actually tough. A better description would be 'brittle glass' because toughened glass breaks into little pieces when impacted or scratched.³⁴

Annealed glass

Annealing involves a much slower cooling process, which aims to reduce residual stress in the glass.³⁵

Annealing is a process of slowly cooling glass to relieve internal stresses after it was formed. Glass which has not been annealed is liable to crack or shatter when subjected to a relatively small temperature change or mechanical shock. Annealing glass is critical to its durability. If glass is not annealed, it will retain many of the thermal stresses caused by quenching (a quench refers to a rapid cooling) and significantly decrease the overall strength of the glass. However, by comparison, toughened drinking vessels have substantially higher impact strengths than annealed glass - over a period of extended use (3–6 months) in licensed premises, toughened glass was still shown to retain a level of strength equivalent to that of new annealed glassware.

'Toughened glass is inherently stronger when new but if damaged it can break quite easily. It can also shatter spontaneously if damaged.'

Rebecca Cocking

*British Glass Manufacturers Confederation (British Glass)*³³



Source: www.istockphoto.com ©iStockphoto

Plastic

Key strengths

- High impact resistance
- Little or no injury risk.

Key weaknesses

- Drinkers dislike plastic glasses
- Flexible plastic glasses, when full, are difficult to carry without spillage
- Anecdotal evidence suggests excessive fizzing when beer is poured into the glass, resulting in wastage
- Plastic is seen to have poor environmental implications in disposal
- There is anecdotal evidence of significantly more littering when disposable glasses are used
- There are growing concerns over Bisphenol A (BPA) leaching from polycarbonate glasses
- Plastic is seen by some to be less inert than glass and many believe it changes the taste of the drink as a result
- Plastic is prone to scratching.

A number of manufacturers already offer plastic drinking glasses. At the top end of the quality scale are polycarbonate vessels, manufactured by injection moulding. Virtually unbreakable in normal everyday usage, polycarbonate is used as a shatter-resistant substitute for glass. A number of other materials such as styrene acrylonitrile, polystyrene and polypropylene are also widely available, but do not offer the same qualities as polycarbonate. Styrene acrylonitrile and polystyrene, both hard wearing plastics, are also brittle and can crack easily. Polypropylene glasses, commonly seen at outdoor events, are flexible to the touch and often cause excessive spillage as well as being susceptible to splitting.

Misconceptions

Users, licensees and others initially resistant to polycarbonate glasses tend to become significantly more positive after seeing and handling good quality samples. The majority of ill-feeling towards polycarbonate glasses is based on misconceptions about the material's strength, feel or appearance. These misconceptions are often effectively dispelled by seeing the sample glasses.³⁶

But, as with toughened glass, there is currently no recognised standard, so the quality of polycarbonate glasses varies greatly between manufacturers.

Nationally, a growing number of initiatives encourage the adoption of safer glasses. In Glasgow the city council tried to make the use of polycarbonate drinking glasses mandatory in city centre pubs and bars. But, as in the rest of the UK, they did not meet with universal approval. Connoisseur drinkers insist that plastic glasses adversely affect the taste of their pint. They don't like interference or social engineering, as they see it.

'When you said plastic glasses I was thinking cheap plastic glasses, but this is actually really similar to a real glass.'

Female drinker, 20s

Polycarbonate vs. Glass *Benefits & barriers*

Polycarbonate glasses are definitely a 'safe' alternative to glass. They don't shatter when new and they can withstand the weight of a three tonne truck.

They are widely supported by police officers, surgeons, victims of glassing and their families, as well as some publicans. But the debate still rages regarding the suitability of the material as a replacement for glass. It may fulfil all safety criteria, but is this the perfect drinking vessel?

Price

Although glass is cheap compared to plastic, due to the manufacturing process, the tooling is more expensive. The overall purchase cost of a glass is a combination of the material cost and tooling. A cheap tempered pint glass might cost around 40p, and this doubles to 80p if the glass is toughened. A quality polycarbonate glass will typically cost approximately £1.00, around 20% more than the more expensive glass alternative. However, these costs need to be considered in light of the life of the glass - data that is not readily available. There is an argument that although polycarbonate glasses are more expensive, their toughness and resistance to breakage may offset this cost.

After they started using polycarbonate glasses, the UK's largest nightclub operator, Luminar Leisure, said they saved an estimated £200,000 because there were no more insurance claims from customers getting cut feet from walking barefoot on broken glass. Steve Thomas, Director of Luminar Leisure, explains: 'The introduction of polycarbonates is cost-neutral: polycarbonate costs a bit more than glass, but lasts longer.'³⁷

Recycling

The recycling infrastructure for glass is well established. The relatively low number of glass variants in circulation (mainly different colours), the widespread usage, and the high density of glass make this practical. Plastics, on the other hand, are used in many more variants, making recycling more of a challenge. One opportunity to overcome this problem may be to use the well-defined nature of the supply chain to the drinks industry, and the very high value of polycarbonate (£2,100 per tonne). Research shows that if the grade of polycarbonate used for glasses could be standardised, local schemes could be set up to recycle them. While recycled polycarbonate could not be used again for glasses, it could have many other applications. The high value of polycarbonates could provide a real incentive to recycle.

Looking further ahead, developments are underway to recycle plastics at a polymer level. This would overcome the problems of mixing different grades of plastic, possibly making the recycling of plastic much more practical.

Longevity

A tendency to ‘cloud’ after a number of washes, and to scratch easily, has led to questions about the longevity of polycarbonate compared to glass. In a series of recent tests the Institute of Materials and Mining also found polycarbonate glasses tended to lose strength with repeated exposure to dishwashing cycles.³⁸

‘The structural strength of polycarbonate materials is severely affected by both alkaline and glass friendly detergents. In this context, we believe that visible micro-cracking developed within the body of the polycarbonate shapes is generated by the thermal cycle of the dishwashing cycle.’

Perceived quality

Central to many industry brand managers’ argument against polycarbonate glasses is that they would compromise the quality of the product and hence the drinking experience.

‘Plastic substantially compromises the quality of the drinking experience. We take the view that in some cases, polycarbonates are a necessary measure in ensuring customer safety, and we’ll implement them - even if doing so reduces the level of customer satisfaction associated with visiting the venue. But there are other types of operations where to ask customers to drink out of a polycarbonate glass would fatally compromise their experience, and they will simply not come back.’

— Simon Kaye,
Commercial Director, Regent Inns

Sensory experience

The qualities and material properties associated with glass have become ingrained in the drinking experience. When asked to evaluate the experience drinking from a glass and compare it to drinking from polycarbonate, common themes emerge:

Taste

Many of the drinkers interviewed were concerned about how polycarbonate glasses affected the taste of the drink.

‘It tastes different, different texturally. It’s difficult to explain. It tastes cheaper, like if you were to drink a cheap cola instead of a regular cola.’

Male drinker, 30s

‘It feels like less. It’s the weight, it’s the size. I may be wrong but it feels less than a pint.’

Male drinker, 30s

This view is shared by the Campaign for Real Ale. ‘Plastic glasses taint the taste of the beer. The drinkers least affected by introducing plastic containers will be the ones who drink to get drunk and don’t care about quality. As this is the group that is responsible for almost all pub related violence it means that the licensing board policy isn’t just punishing the innocent along with the guilty, it is punishing the innocent instead of the guilty’.³⁹

Weight

Visually distinguishing a quality polycarbonate glass from one made of glass is a challenge to even the most perceptive drinker, but handling it rapidly reveals the dramatic difference in weight between glass and polycarbonate. Conditioned to associate quality with weight, the drinker is suspicious of the lightweight polycarbonate glass.

Temperature

Almost all drinkers are concerned about the temperature of their drink when served in a polycarbonate glass. They also say the lack of condensation on the glass is off-putting, even though drinks stay cooler for longer in a polycarbonate glass due to better insulation from body heat.

Most polycarbonate glasses currently on the market are a close visual match for glass, leaving the user feeling cheated, and often sceptical, on closer inspection. Through design there is potential to exploit the true properties of polycarbonate, in turn encouraging a more positive response from drinkers.

The Institute of Materials, Minerals and Mining has tested polycarbonate, annealed and toughened glass pint glasses to see how each material breaks and stands up to everyday pressures like dishwashing and stacking.

Its conclusion: ‘There is clear evidence that the use of toughened glass provides impact strength and fracture characteristics of value in reducing glassing incidents. Clearly, polymeric materials, particularly polycarbonate and co-polyester, offer impressive impact strength to further reduce glassing problems. The potential to develop surface coating technology, polymer colouring, or the incorporation of wear-resistant bands to improve scuffing behaviour may offer promise to reduce replacement costs for plastic glasses.’



Alternatives to glass

Methods for adoption

There are currently a number of formal and informal methods for introducing or enforcing the use of polycarbonate glasses. Amid growing resistance from the licensed trade and customers to a legal ban on conventional glasses, police officers and licensing authorities are increasingly reluctant to impose blanket bans. It is acknowledged that this is not the solution.

Responsible licensees

Many licensees already use a combination of polycarbonate and glass, using their judgement about times when anti-social behaviour could be more likely.

Licensees are also highly aware of the risk of accidental harm from glass, and so take the relevant precautions to minimise it. For example, many use plastic glasses during busy sporting events or at live music venues.

Localised Licensing Authority

Before the introduction of the 2003 Licensing Act, imposing specific and targeted conditions within licensed premises to safeguard against a particular problem was a complex process, which police officers often had neither the time nor the resources to pursue.

The 2003 Licensing Act established a single integrated scheme for licensing premises. Permission to carry on licensable activities is now contained in a single licence, the Premises Licence, which replaced several different and complex schemes. Responsibility for issuing licences now rests with local authorities, which are required to establish a Licensing Committee to address specific concerns, such as the likelihood of problems on key dates like sporting events, or in response to a glassing incident. Police officers can now bring cases before the Licensing Committee and try to impose the use of polycarbonate glasses through a condition of licence.

Case study

Northampton and polycarbonate glass trials

The problem

21-year-old Blake Golding was working as a nightclub doorman in Milton Keynes on Christmas Eve 2004 when he had to break up a fight. He was attacked by an assailant who slashed his face many times with a broken glass bottle and inflicted wounds 10 inches long over Blake's forehead, right eye, cheek and neck. Blake's mother Marjorie has gone on to campaign for late night drinking venues to bring in polycarbonate glasses.

After Marjorie led discussions at the National Licensing Conference in November 2006 on the safety of polycarbonate glasses, Northampton Borough Council commissioned Northampton University to analyse violent crime in the night-time economy of Northampton town centre. It revealed that the number of violent crimes where glasses or bottles were used as weapons was 'considerably higher than the national average'.

Staff at the local hospital's A&E department revealed the issue of glass related injuries was significant. Assessment focused on comparing the night-time economy of the town's 'leisure zone' with national statistics. Venues that enabled high volume vertical drinking (HVVD) had the highest numbers of glassing incidents, while licensed premises, such as community pubs, in the less urban areas had less of a problem.

The response

Northampton Borough Council decided to implement a no-glass vessels policy in the sort of licensed premises where glasses or bottles were being used as weapons. It knew a ban wasn't the right solution, as Glasgow had banned glass vessels from city centre pubs, clubs and bars in 2006 and found it alienated the licensed trade as well as many drinkers.

Funding for the Northampton no-glass project was sourced to test the effect of replacing glassware with polycarbonates. Rather than forcing trade premises to adopt polycarbonate glasses, Northampton wanted to work with the trade to trial them. The local Pubwatch scheme supported the change and Marjorie Golding was called in to help promote polycarbonates to trade premises.

The results

The nine largest venues in the town centre now use only polycarbonate glasses. They are also attempting to source PET⁴⁰ plastic bottles. Many other pubs and bars within the recognised leisure zone and in urban locations use polycarbonate glasses at peak times in gardens and smoking areas and for special events like televised sport.

Within Northampton town centre the number of glassings and bottlings has significantly declined year on year from 51 in 2006 to 45 in 2007 and 31 in 2008. Since 2004 there has been a cumulative decrease of 40% in glassing incidents.

Continuing analysis

The premises that use polycarbonates were canvassed to gauge customers' response. Most users felt generally safer at venues where they were used and didn't feel they adversely affected the taste, temperature or experience of their drink.

The targeted approach, as opposed to a blanket ban, has been viewed favourably by the trade, who want to continue working with Northampton Borough Council to improve the service they provide.



Promotional potential in a glass

In the highly competitive UK drinks industry, the branding and marketing of drinking glasses is a key way for companies to promote the different brands within their vast drinks portfolios. Major global brewers and distributors like Anheuser-Busch InBev, Coors and Diageo all use variations in glass design, shape and decoration to boost brand profile and encourage consumer loyalty through product differentiation.⁴¹

When beer is served on draft, not in bottles, it is particularly important for the brewers that something conveys the brand. The branded drinking glass, as well as labels on the pump, are important tools in a brand owner's repertoire, because while the customer is drinking their pint they are advertising it to others.

AB InBev is one of the world's top five consumer products companies with a portfolio of more than 200 brands, including Budweiser, Stella Artois, Beck's and Leffe. Branded glasses have formed a major part of the individual marketing campaigns for both Stella Artois and Leffe.⁴²

Coors too has developed branded glasses to accompany all its beer brands, which include Carling, Grolsch and Caffrey's.⁴³

Similarly, Diageo has used innovative marketing campaigns that encompass glass design and branding in their promotion of Guinness, one of the company's highest performing brands.⁴⁴

Smaller brewers and beer companies also distinguish and promote themselves by using branded drinking glasses, so UK drinkers have a wide range of branded vessels to choose from.

Different consumers respond to this proliferation of branded glasses in different ways. When asked by researchers from Innovation RCA, which conducted interviews with landlords, drinkers and the drinks industry on the use of different materials for pint glasses, customers aged 18-35 said they preferred their drinks in branded glasses. Older beer drinkers said they were less concerned about branded glasses, unless they enhanced the drinking experience. For example, a branded glass that has been etched to encourage nucleation (the formation of bubbles), glasses with specific shapes designed to capture aroma and improve taste, or stemmed or double walled glasses that claim to affect temperature were all cited by customers as reasons for deciding which beer to drink.

The RCA researchers concluded that the effect of an unusual glass was particularly important to those drinking continental beers. They immediately associated these beers with the continental drinking experience, where drinking from a much larger range of branded glasses is the norm. Many who drank continental beers said they would feel the drinking experience had been diminished if they were not served their beer in a branded glass.

What bar staff want

Most bar staff said there are both positives and negatives to serving drinks in branded glasses. On the positive side, they reported increased customer

satisfaction at having the choice of a branded glass, while managerial staff frequently mentioned the cost and efficiency benefits of using branded vessels, which are supplied free, or at a subsidised price.

Negative feedback largely related to problems like reduced stackability, limited storage capacity, increased breakability of certain glasses through handling and washing processes, and increased theft of particularly desirable glasses.

Branded polycarbonates

Another study by Innovation RCA of the types of branded promotion applied to plastic glasses showed that, with the exception of occasional branding by major brewers on the kind of low quality plastic glasses provided at mass gatherings like sporting events and music festivals, there is currently no significant branding of polycarbonate glasses in the UK.

Student Union bars are one of the few types of premises known to have adopted branded polycarbonates because they are often encouraged by free supplies from brewers. But even many of these feel the quality of plastic glasses is not yet good enough and they supplement the branded polycarbonates by buying more expensive high-end polycarbonates.

Using the senses

Beer should look good to the drinker. Ales and lagers should be clear and bright, with a good head. Stouts need to be dark with a thick creamy head. Even cloudy beers such as wheat beers should never look dull.

All the drinker's senses help them judge if their pint is a good one. They may see a brand stamped on the side, or hear the beer frothing, feel its cold through the glass, and smell the aroma, and all before they finally taste it.

Beer brand owners understand how important each of the drinker's senses is. 'We want to make sure it looks great... it's what it tastes like, what it feels like in the hand; does it feel cold, does the foam last as long as it would in a standard glass? We would be delighted to use a safe glass if the drinking experience was as great as a normal glass,' says Paul Hegarty, Director of Communications at Coors Brewers.

There are plenty of opportunities for designers to help exploit what Hegarty calls the 'theatre of dispense'. Glasses are a vital part of this theatre, allowing the aromas, flavours, head and overall visual appeal of the beer to be maximised.

Material potential

A number of common labelling, decoration and strengthening processes could be used to make pint glasses safer and create branding opportunities.

— Plastic shrink sleeves are already used to brand glass bottles. This process could be applied to drinking glasses, making them safer while simultaneously offering branding opportunities.

— The car industry uses polycarbonate for headlamps, and protective coatings prevent scratching and dulling of the plastic over time. These same coatings could improve polycarbonate glasses' resistance to scratching and prolong their life.

Case Study

Stella Artois

Stella Artois recognised that design and branding opportunities could help them deliver a better experience for drinkers when they launched a new 4% strength beer in the UK.

Brand owner InBev saw that more British drinkers were taking up continental drinking styles and enjoying their beer from a branded glass. So they made sure the continental credentials of Stella's 4% beer were highlighted in TV commercials and in the design of new glasses to coincide with its launch.

The Stella Artois chalice glass is based on the traditional Belgian beer glass but it has additional features including embossed sides to keep the beer insulated, a shape designed specifically to eliminate any frothing and a lip engineered to retain the head of the beer throughout the drink.

Michael Thompson, of the Portman Group (an industry-wide organisation encouraging responsible drink promotion), says that while Stella was quick to see the branding opportunity of a newly shaped glass, it could have made safety improvements to the design as well. He says that consumer affection for the continental drinking model offers an opportunity to the drinks industry to develop new, safer drinking glasses: 'It's all about being driven by consumer appeal, and finding something that is attractive to consumers... In big cities, like London, you'll see consumers demanding more and more beers that are very popular on the continent. The continental drinking experience is different – the glass adds to it.'

Could the knowledge that you're drinking from a safer pint glass add to the experience of you drinking a new beer?



3. Designing a safer future



How designers can help

Jeremy Myerson,
member of the Design
& Technology Alliance
Against Crime and
Director, Helen Hamlyn
Centre RCA.

Current trends in alcohol-related violence in Britain present designers with a difficult challenge. The culture and experience of drinking is in many ways a designed experience. Design could therefore be said to be part of the problem, but it can also be part of the solution, especially when it comes to the design of drinking glasses.

The Design & Technology Alliance Against Crime, which was convened by the Home Office to explore how design and technology can address aspects of criminal behaviour, believes designers have much to offer in improving the design of the British pint glass.

There is a real opportunity here to offer both a pleasurable and safe drinking experience through material innovation and creative design. Design is not just a tool for businesses to commission. In the right hands it is also an agent for social change and progress.

Designers' skills and processes are already used to create innovative new products and services and their skills are equally suited to tackling pressing social problems such as alcohol related violence. The way designers work means design is an appropriate method for delivering social change and progress.



1

They understand the problem

Design is a problem solving discipline and at the start of every project designers need to do research that helps them fully understand the problem they have been asked to address.

They think about the who, what, when, where, why and how of the problem and do research online or via academic documents to inform their view.

The facts and figures in this book are an example of the preliminary research designers undertake at the start of every project. Designers look at the problem from all sides to find statistics, people or facts that inspire them or that challenge their preconceptions. It is important that the designers look at the problem from the point of view of their client and also understand their aims in commissioning a design project.

Research for the Design Out Crime safer pint glass project breaks down how glassings and alcohol-related crime affect:

- Victims
- Emergency services
- Pub landlords
- Beer brands
- Compensation payments from insurance companies or the Criminal Injury Compensation Board.

Once designers have compiled facts and evidence about the problem, their focus shifts to the people and customers the design project could affect with a view to understanding what these people need them to do.

2

Get to know the users.

And any abusers

Designers regularly focus on delivering products and services that meet user needs, but when designing out crime they also need to think about the people that abuse the system. They need to know and understand users and abusers.

To design a safer pint glass that is less likely to be used in glassings, designers need to understand how abusers use glasses in violent attacks. By talking to emergency services and victims of glassings it emerges that attackers tend to use one of four main techniques:

- Slapping: the perpetrator slaps his or her hand across their victim's face while holding a glass.
- Smashing: the perpetrator smashes a drinking glass then swipes or stabs at their victim.
- Stabbing: the perpetrator thrusts an intact glass towards their victim in a stabbing action.
- Throwing: the perpetrator throws an intact glass at their victim.

As well as understanding how abusers could misuse a product and create a problem, designers consider how legitimate users will be affected by any changes. Pint glasses affect customers who drink beer, but they also affect bar staff who serve, collect and wash them, pub landlords who buy them and beer brands which can promote their products on them.

3

Research design ideas

What does safety mean and how have things been designed to be safer? Research can reveal how others have been making their products safer. Some techniques include:

- Defence: Wee-Go baby bottles are made from glass so plastic can't taint their contents. They are encased in a contemporary silicone sleeve which stops them breaking if they topple and makes them easier to hold.
- Reinforcement: strength can be added to materials by reinforcing them with stronger and more flexible materials.
- Containment: Safety razors have been designed to make sure sharp blades are contained by wire so they can't inflict serious injuries.

4

Search for appropriate materials and technologies

Designers understand their ideas need to be manufactured on a mass scale to become a commercial reality, so they collaborate with materials and technology experts. They don't restrict themselves to looking for inspiration in the market they are designing for. When producing a new pint glass they might ask:

- What is done to glass on car windscreens that means they don't break on impact? Could its manufacturers also make drinking glasses?
- Why don't polycarbonate headlights on cars get scratched and go dull like polycarbonate glassware? What is it coated with? Is the coating food grade?
- Why do the leading glassware manufacturers develop so many new ideas each year without a route to market?

5

Sketching and visualising ideas

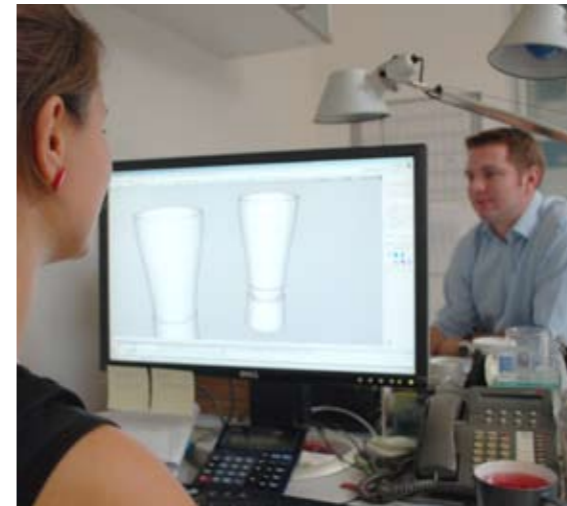
Sketching and developing computer models of design concepts is a core part of the design process because it helps designers communicate their ideas to each other and to their clients and it allows them to start testing whether their ideas can be modelled into reality.

6

Make models to test and use results to develop ideas

Models are useful to bring ideas to life, turning them into a 3D form that can be judged for scale, feel and performance.

More sophisticated prototypes are essential for rigorous testing and they are helpful when testing your designs with users to help them understand how a final product will feel and how they will use it. Prototypes are also essential as production models to explain how the product could be manufactured at scale.



Conclusion

The Alliance has worked with the Design Council to marshal the evidence and insights captured in this publication and enable designers, beer brand owners and policy makers to understand the scale and effects of the problem of alcohol related violence, and particularly glassings. It has also identified some key ways that professional design firms can help create a safer drinking experience.

Four design briefs were created to show how designers could approach the challenge. One design agency, Design Bridge, was commissioned by the Alliance to design its own response to the briefs that appealed to them. You can use these same briefs, or create your own, if you have been inspired to design a solution to alcohol related violence.



Brief 1 — Glass and more

Design an improved glass vessel that incorporates an additional design feature (branded or otherwise) that makes it appealing to the consumer but increases safety by reducing the opportunity for the vessel to be used as a weapon. Pub landlords think that glass is the best material to drink a pint from: ‘The beer holds its head much better in glass than it does in plastic. The presentation is much better and people prefer drinking from glass than plastic.’ So, if people like glass so much, why not let them keep it? But let’s make glass in drinks vessels safer.



Brief 2 — Under-the-radar safety

Design a new safer glass by modifying the properties and features of glass itself to make it less easy to break and use as a weapon. This will be a behind-the-scenes solution where the new design will not provide a significantly different user experience. Paul Hegarty, Director of Communications at brewer Coors, says: ‘However good the beer tastes when it leaves the brewery, it’s the experience when people drink it in the pub that really determines whether people like it. It’s all about surprising and delighting people at the pumps. It’s about what it tastes like but we also want to make sure that it looks great. It’s how it feels in the hand. We would be delighted to use a safe glass if the drinking experience was as great, or better, than with a normal glass.’



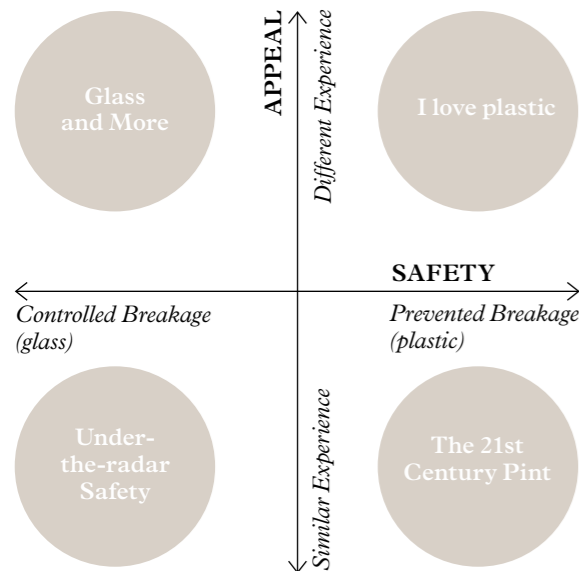
Brief 3 — I love plastic

Design a new plastic/composite drinking glass that harnesses material properties to give added benefits to the consumer (and brands) and address negative consumer attitudes to plastic. The new proposition should include consideration of a creative campaign to create positive attitudes towards the plastic glass. Sebastian Conran, Chairman of the Design & Technology Alliance Against Crime, thinks designers and beer brand owners are missing an opportunity to be innovative and use alternative materials in a pint glass. He says: ‘It’s not so much a question of what the polycarbonate glass is going to look like but what the customer experience is going to be. How are they going to be served? Are there things you can do with the serving of plastic glasses or paper cups that you can’t do with real glass?’



Brief 4 — The 21st century pint

Design a new safe drinking glass that goes back to the drawing board to set the new standard for drinking vessels for the 21st century. It should make the most of current advancements in manufacturing and material science to deliver a credible alternative to glass in its user experience while presenting a powerful business case to industry. Peter Hayden, author of An Inebriated History of Britain, says: ‘Present beer in a fashion that elevates it. Stop presenting it as a commodity. Start thinking of it as something that has intrinsic values rather than something that’s there to get you bladdered.’



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The Home Secretary's Design & Technology Alliance Against Crime brings industry, the public sector, designers and crime prevention experts together with victims of crime to prototype new design-led ideas for crime-proof gadgets, public spaces and housing.



The programme will work with industry experts to tackle five areas where design can help to prevent crime:

Schools

Finding and applying specific design solutions to reduce problems such as bullying, fighting and petty theft in schools.

'Hot' products

Developing innovations in technology, services and product design which help make personal electronics more crime-proof.

Housing

Embedding design-led approaches to help develop safer communities by reducing crime and the opportunities for them to occur.

Alcohol-related crime

Finding design-led approaches to reduce the harm caused by alcohol-related antisocial and criminal behaviour, especially assaults in pubs and clubs.

Business crime

Helping businesses to use design to minimise the crimes which victimise them, their customers or employees – such as shoplifting and other forms of retail theft.