There is a range of preventive strategies that can reduce the risk of assaults on taxi drivers, including technological interventions, training, and policy changes. A combination of technical interventions, including protective screens, Global Positioning Systems, cameras, cashless payment systems, two-way radios, alarms, flashing emergency lights, and policy initiatives is most likely to reduce the risks.

As Trends and Issues paper number 178 showed, the patterns of assaults and risk factors are predictable. Injuries are typically bruises and lacerations to the head and upper body, and occasional fractures. These assaults usually come from passengers in the rear seat of taxi sedans.

**Technological Strategies**

Technical prevention strategies include “target hardening” approaches (making robbery more difficult), increasing the probability of identification through improved surveillance, and “reducing the rewards” through cash reduction.

**Safety screens or shields**

Screens reduce assaults and homicides. In contrast to London-style taxis, most Australian cabs are modified sedans with no division between the front and back seat. In recent years, many taxi owners have inserted protective screens which can be full-width, half-shield, or a capsule enclosing the driver. These are made of clear perspex, lexan or other high-impact materials, sometimes including steel plates fitted in the back of the driver seat (TLC 2000, p. 2). The Manitoba Taxicab Board (1991) developed detailed shield specifications. Positive impacts since fitting have been variously estimated at: an absence of homicides and a 70 per cent drop in assaults in Boston; a 56 per cent drop in assaults in Baltimore; and a 70 per cent reduction in robberies in New York (Appleby 2000, p. 3; Elsworth 1997, p. 28; Stone and Bienvenu 1995, pp. 23-4; Manitoba Taxicab Board 1991, p. 6).

While screens are mandatory in some Australian cities, opinion on the screens remains divided. Screens may restrict air circulation, limit communication between driver and passenger (which may result in fewer tips), do little to stop attacks from front seat passengers, and contribute to claustrophobia in smaller taxis (Farley 1999). Screens were first fitted decades ago in some US and Canadian cities, but many were removed because of passenger injuries during crashes (Stenning 1996, p. 26; Stone and Bienvenu, 1995, p. 26). Further, while some Australian states have mandated that owners must fit screens when drivers ask for them, this may inadvertently result in drivers losing their jobs if owners do not want to pay the costs (Hume 1995/96, p.17).
Emergency communication systems

The radio has been described as the "lifeline" of taxi drivers ensuring a quick response when a driver is in trouble, accurate information provision, and good radio operators can sense when a driver is in trouble (Barton 1996, p. 2). However, radio communication systems are readily disabled, help may not arrive for some time after a distress call is made, and emergency switches can be broken (Dalziel and Job 1997, p. 119).

The recent development of Global Positioning Systems (GPS) allows for pinpoint accuracy in locating a taxi in trouble, and aiding efficient vehicle dispatch. GPS became possible once a series of navigation satellites were placed in orbit around the earth so that any specific location had at least three in line of sight (Smythe 1992, p. 1). A taxi with GPS installed is linked to a base computer, receives navigation signals from satellites in line of sight, instantaneously calculates the precise latitude and longitude of the taxi, and is displayed as a moving point on city street grids on the base computer screen (Smythe 1992, p. 2). The development and use of GPS systems was boosted significantly during the Gulf War, and costs have dropped dramatically with widespread adoption. The GPS is yet to be implemented in all taxis across all cities, and may be resisted by drivers who are concerned about increased surveillance.

Emergency lights and duress alarms

External roof emergency lights are common, comparatively cheap, and offenders should be unaware when emergency lights are flashing. Victorian drivers also benefit from windscreens flashing lights (STAYSSAFE 1997, p. 203). However, emergency lights are of limited use if no external person sees them—or knows what the flashing light means.

Emergency alarms are regularly fitted to taxis. Because of frequent false alarms through drivers accidentally touching switches, base operators may require confirmation—which a driver under siege may be unable to provide. Further, accidental activation where the system is connected with a camera can stop pictures being taken until the computer has been re-set (Radbone 1998). In the interim, the driver is vulnerable. Other types of alarm systems sound the horn and flash hazard lights at the same time (see www.taxi-1.org/waproced.htm).

Overall, both visual and audio alarms have a low level of support amongst taxi drivers, probably due to slow response times and lack of familiarity (Haines 1998, p. 74).

Security cameras

The installation of video or digital cameras in taxis to photograph passengers is increasingly common across the industrialised world. Cameras allow identification, apprehension and conviction of offenders in an unprecedented manner (Appleby 2000, p. 4; TLC 2000, p. 1; Ward 1999).

There is a wide range of models available that provide picture evidence of offenders with the time, date and vehicle identification number stamped. The cameras are small enough to be fitted on windscreens, are robust, use infra-red technology that allows pictures to be taken during the day or night, can store more than 100 images before they are recorded over, and can be uploaded to a remote location (Farley 1999, p. 9). The images are stored in a small secure control unit installed elsewhere in the taxi. Solid state digital technology was chosen for Perth taxis where cameras have been mandatory since December 1997; these resulted in a 60 per cent reduction in attacks on drivers within a year after introduction (Pfauum 1999). The mandatory requirement was implemented after a spate of serious assaults, an 18-month decision-making, testing and development process; and with 2/3 of the cost of installation paid by the Taxi Industry Development Fund in Western Australia (Radbone 1998).

Cameras can also prevent unruly behaviour and provide proof that a driver did not assault (or make sexual advances to) female passengers who threaten to lay charges if a free fare is not provided (Radbone 1998, p. 6). One female taxi driver in Sydney has adopted the practice of telling troublesome passengers that they are being filmed—as this has been found to be an effective deterrence (Dalziel and Job 1997, p. 119). However, in extreme cases, the downside of cameras is that some offenders may burn the vehicle and kill the taxi driver in the belief that this destroys all the evidence.

Passenger restraints and driver controlled door locks

When waiting at a rank or in a queue, drivers should keep all doors locked to avoid a surprise random attack. This strategy is particularly important at night, or if the attention of the taxi driver is distracted through reading while waiting for a fare. While some taxi drivers lock car doors while transporting passengers to reduce fare evasion, others believe this encourages assaults. Sometimes following an assault, taxi drivers have been imprisoned in the boot of their vehicles; if internal catch releases are installed, these drivers can escape rather than suffocate.

Air bags can be fitted to the rear section. These can be activated and inflated by the driver to restrain aggressive passengers (Williams 1996).

Adoption of the French intervention where an electric shock is given to problem passengers is unlikely to be adopted in Australia (Williams 1996).

Cash reduction

The displacement of crimes from businesses that have implemented prevention strategies may increase the risk of robbery-
related assault on taxi drivers. Inevitably taxi drivers must reduce their “attraction” by adopting cashless fare strategies and carrying minimal amounts of money (see WorkCover 1996).

Drivers should never carry substantial amounts of money, wear jewellery, or tell passengers that they have had a good shift (WorkCover 1996, p. 5). Regular deposits of cash through an ATM should be made throughout each shift. If a passenger offers to pay the fare in a large note denomination, the taxi driver should not reveal that s/he has sufficient change and should drive to a nearby store to obtain change (Barton 1996, p. 3; WorkCover 1996). With higher-risk passengers, or on longer journeys, drivers can prevent fare evasion by requiring payment in advance (Burrows et al. 1999, p. 59).

The use of Cabcharge vouchers is now widespread. Credit cards can be “swiped” at commencement of journey with the fare filled in at end. The introduction of magnetic and “smart cards” will further reduce incentives for robbery, and improve financial record keeping. However, this easily followed “paper trail” may discourage drivers who do not wish to leave an easily audited income track (Appleby 2000, p. 4). Ideally, sophisticated “smart cards” would cover all forms of public transport (Stone and Bienvenu 1995, pp. 29-30). Use of EFTPOS in taxis remains uncommon, with any surcharge discouraging widespread acceptance (Elsworth 1997, p. 29).

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**Training, Social and Policy Strategies**

**Training**

Training for taxi drivers should include use of equipment (such as cameras, alarms, GPS), base links and operating procedures, legal requirements (road rules, taxi, and passengers), police liaison and protocol, and communication and interpersonal skills. The adoption of a “Code of Conduct” has also been discussed (Dalziell and Job 1997, p. 122).

Historically, many training programs focused on development of interpersonal skills, and identification of warning signs of violence. Of note, in the substantial Canadian study of taxi driver victimisation, those drivers who had received training in safety and risk awareness did not have an improved victimisation level (Stenning 1996, p. 64). Stenning warns:

> The idea—which implicitly or explicitly suffuses so much of the current training materials on this issue — that the key to addressing this problem lies in self-improvement and self-regulation of his or her conduct by the taxi driver him or herself, may be quite misleading and is certainly questionable … much victimization of taxi drivers lies outside the capacity of taxi drivers themselves, or of the taxi industry as it is currently structured, to effectively control or prevent (Stenning 1996, p. xvii).

Each driver should be well versed in the emergency procedures of the taxi company, and the location of emergency switches (Barton 1996, p. 4). Taxi drivers should be in the habit of checking the location of emergency switches in their vehicle at the beginning of each shift because the placement may vary across cabs. Recently, increased attention has been paid to emerging risks such as exposure to syringes, police relations, and legal guidelines in a range of situations including prostitution (Barton 1996).

Aggression from passengers may be diminished through initial greeting, maintenance of eye contact when entering the cab and through the rear view mirror, avoiding arguments, and ensuring the taxi driver is knowledgeable about routes around a city (Barton 1996, pp. 3, 5). Vague destination instructions are an important warning sign of impending aggression (Mayhew 1999; Barton 1996, p. 4; WorkCover 1996, p. 4). In response, the taxi driver can inform the passenger that it is company policy not to accept a fare until an exact destination has been provided (Barton 1996, p. 4). If passengers refuse or hesitate in providing an exact destination, or change destination during a journey, this is a “high alert” warning and the taxi base should be notified. A number of trainers recommend that taxi drivers trust their instincts or “gut feelings” about suspicious passengers (Barton 1996, p. 3).

Finally, taxi drivers should never resist a robbery, fight back, or chase a fare evader. “…what the robber wants is your money, maybe the car. Give it to him…do not resist” (Barton 1996, p. 7). Thus the appropriate behaviour for a taxi driver is to comply, stay calm, be cooperative and talk in the normal tone for passengers—while anticipating a potential escape route.

**Refusal of high-risk passengers**

Taxi drivers may refuse to accept higher-risk passengers, to pick-up from specific suburbs, or accept passengers from some pubs (Burrows et al. 1999, p. 108; Haines 1998, p. 75; Stenning 1996, p. 39; Eastal and Wilson 1991, p. 39). With street experience, drivers can identify warning signs of high-risk passengers including picking up passengers from an alleyway, vacant building or a pub (Barton 1996, p. 5; Stone and Bienvenu 1995, p. 22). However, taxi drivers may be tempted, when earnings are low, to pick-up higher-risk passengers and to work in risky neighbourhoods.

**The carrying of weapons by taxi drivers**

Some taxi drivers carry weapons for self-protection. In the Victorian survey, 20 per cent of male and 12 per cent of female taxi drivers carried a weapon for self-protection; those whose first language was English (22 per cent) were more likely to carry a
weapon than NESB drivers (14 per cent) (Haines 1998, p. 75). Yet the evidence indicates that NESB drivers face higher risks (Keatsdale 1995). That is, the propensity to carry weapons may be mediated by gender and ethnicity, but not by risk level. In a Canadian study, 31.3 per cent of drivers surveyed carried weapons, including hand-held sprays, knives, blunt instruments, and guns (Stenning 1996, p. 47).

Campaigns for taxi drivers to be legally permitted to carry pepper sprays or mace have not generally been successful, with critics arguing they may increase the danger for everyone in the taxi (Stenning 1996, pp. 28, 49, 51).

The carrying of weapons by taxi drivers means that the role of potential victim and offender can interchange. Haines (1998, p. 77) warns that driver-controlled door locks risk passenger safety when taxi drivers become offenders. Yet as Stenning (1996, p. 4) identifies, systematic and reliable information about criminal victimisation by taxi drivers appears to be unavailable. Of note, interviews with Canadian taxi drivers indicated that perpetrators of violence against taxi drivers were injured as frequently, and often more seriously, than were the intended driver victims (Stenning 1996, p. 64).

**Legal and policy strategies**

The “Duties of Care” specified under the OHS legislation in each Australian State and Territory require a safe place and process of doing work. The interior of a cab is a workplace, with owners/managers having primary responsibility to protect the health and safety of taxi drivers. Easton—who is an Inspector with WorkCover New South Wales (1997, p. 157) has emphatically stated that a person driving a vehicle in the course of performing their work duties is in a workplace while they remain in their vehicle. Thus employers need to implement a systematic hazard assessment and risk control strategy (Easton 1997, p. 157). Owners of taxis who do not take appropriate preventive steps when a risk is foreseeable can be liable under the OHS Acts—as well as under common law. For example, the Queensland Supreme Court case of Lougherey v. Yellow Cabs revolved around the lack of installation of a readily available cheap screen to protect a driver who was subsequently severely assaulted. (This case was quietly settled out of court in 1998.) However where the relationship between the taxi owner and taxi driver is that of a “bailee/bailor” the responsibilities are less clear. Nonetheless, contractual relationships do not abrogate OHS responsibility according to the WorkCover New South Wales Inspectorate (pers.comm. Grepl, 9 October 2000). The legal status and OHS responsibilities may need to be more clearly and tightly defined in OHS legislation. Nevertheless, as a result of the Lougherey v. Yellow Cabs decision, it is inevitable that more protective devices will be installed. Thus driver resistance to protective devices may place taxi owners in a vulnerable position from a legal point of view. Further, in the future it is likely that the “chain of responsibility” will come under closer scrutiny by the OHS enforcement authorities. The “chain of responsibility” is particularly important if the economic construction of the industry shifts towards further deregulation, and violence is displaced to less-regulated sectors of the industry—such as has occurred in New York and the United Kingdom with mini-cabs.

Recommended public policy changes have included: appointment of a Taxi Registrar with a Deputy Registrar appointed from the police force; recording of taxi certificates and licence holders on the police data base; exclusion of drivers with a history of dishonesty, violence, or drug trafficking; and maintenance of a complaints register (PVCP 1993, Appendix 5). Finally, it was recommended that self-regulation of the industry not proceed and co-regulation be deferred, until a professional representative body was established (PVCP 1993, Appendix 5).

Many believe that quicker police assistance and more stringent court sentences might reduce the incidence of assaults (Elzinga 1996, p. 207). Lenient judicial sentences and small fines are deeply resented by many assaulted taxi drivers, and are perceived to encourage assaults (Mayhew, 1999, p. 138). A number of studies have suggested that tougher sentencing of offenders, minimum sentences after a violent crime, more uniform sentencing decisions, and equal treatment of juveniles and adults for violent crimes, might deter violence against taxi drivers. However, many police and others in the criminal justice system believe that there are significant limitations with a narrow “tougher penalties” approach. In particular, few offenders are deterred by stronger penalties because perpetrators rarely consider the possibility of being caught (Abbate 2000, p. 1; Fordham 1996). Finally, the mechanisms by which victims can access criminal injuries compensation following an assault may need to be more widely discussed.

Broader social and community prevention programs may also reduce the risks of violence from inebriated passengers. For example, a community-based program involving licensees on the Gold Coast significantly reduced levels of violence in and around licensed premises (Homel 1997, pp. 229-30). While physical violence and street offences declined markedly, the extent of displacement to other sites could not be estimated.

**Conclusion**

Effective preventive strategies require a combination of technical, social, and policy interventions.
Prevention Strategies—summary

A combination of “target hardening”, improved surveillance, cashless technologies, and clarified OHS legal status is needed:

- **Technological innovations** based on “target hardening”: protective screens, Global Positioning Systems, two-way radios, alarms, and flashing emergency lights (and training in their use);
- **Improved surveillance and offender identification** through: video cameras, enhanced lighting at ranks;
- **Cash reduction**: Cabcharge vouchers, magnetic “smart cards”, regular deposits of cash at ATMs throughout shift, payment in advance;
- **Legal clarification of OHS rights and responsibilities** under different employment situations, and enforced accountability throughout the “chain of responsibility”.

Risk reduction for taxi drivers will require technological interventions based on “target hardening”, improved surveillance, and cashless technologies. A combination of technical interventions, including protective screens, Global Positioning Systems, cameras, cashless payment systems, two-way radios, alarms, and flashing emergency lights, respectively, is most likely to reduce the risks. These can be implemented progressively, for example, the Perth taxi driver summit recommended a short-term strategy of compulsory video surveillance, a medium-term intervention of optional fitting of screens, and a long-term goal of development of a specific taxi vehicle (1996 www.taxi-1.org/waproc.htm). However as Chappell (2000, p. 311; 1998, pp. 12-13) warned, in-depth consultation with the industry and workers prior to the introduction of compulsory initiatives is of crucial importance. For example, in 1998 the New South Wales government proposed the compulsory introduction of screens—which resulted in nearly 600 taxi drivers blocking city streets around Parliament House in protest—and resulted in drivers being provided with a choice of cameras or screens (Chappell 1998, end notes).

Social and policy changes are also important for prevention. The taxi industry labour force is fragmented, the industry is very competitive, and profits are low. The legal rights and responsibilities with regard to prevention and compensation of violence-related injury are clouded by employment status, and a lack of awareness of who has responsibility for safety. For taxi drivers who lease or pay a standard hire charge to the owner, debate over employment status is likely to center on the extent of control the taxi owner has over the driver. Legal clarification of OHS responsibilities under different employment situations is probably necessary. The cost of interventions—and who pays for them—is of core importance (Appleby 2000, p. 1). The potentially influential role of insurance companies is yet to be realised, although (as with the costs of car and truck damage from crashes, and life and disability claims) insurance providers have a vested interest in prevention. Thus legislative rights and responsibilities for the prevention of violence need to be more widely considered and publicised.

Thus while the injury and homicide risks are high in the taxi industry, these can be significantly reduced by the introduction of technical innovations, supported by policy changes. While commitment to the reduction of risks is widespread, cost appears to underpin reluctance to reduce the risks in this industry. Thus the introduction of expensive technological preventive strategies is unlikely to be widespread until financial subsidies are provided. In evaluating the effectiveness of interventions, variations in the incidence and severity of violence, and estimates of reported and non-reported violent incidents will need to be assessed. The ultimate test is whether violence against taxi drivers decreases over time.

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