

A multi-stage, multi-faceted approach to addressing ‘car dooring’ in inner Melbourne

Bolitho, J¹

¹ Road Safety Action Group Inner Melbourne

Abstract

Road Safety Action Group Inner Melbourne (RSAGIM) is a registered group of the Victorian Community Road Safety Partnership Program (VCRSPP). RSAGIM focuses on the safety of vulnerable road users in Inner Melbourne. RSAGIM’s members include the local governments of Melbourne, Port Phillip, Yarra and Stonnington. Member councils have a strong commitment to active transport. This paper outlines the work of RSAGIM and its member councils on ‘car dooring’ - the unexpected opening of car doors into the path of cyclists. RSAGIM is pursuing a staged approach to this cause of serious injury. The first stage was a commissioned report on car dooring which analysed the frequency of car dooring incidents and the characteristics of the locations where they occur in Inner Melbourne. The report also reviewed a range of countermeasures. The second stage is an evaluation and investigation of a non-infrastructure countermeasure VicRoads ‘Look for Bike’ stickers. The paper also presents early evaluations of countermeasures put in place in member councils to engineer out car dooring.

Keywords

Cyclist, ‘car dooring’, sticker,

Introduction

RSAGIM is a registered group of the Victorian Community Road Safety Partnership Program (VCRSPP). Registered groups should identify local road safety needs and priorities, develop effective local road safety programs, establish and maintain local road safety partnerships and attract funds and resources.(VicRoads) The VCRSPP encourages registered groups to use evidence based approaches and develop a longer term view in delivering projects and programs. RSAGIM focuses exclusively on advocacy, projects and programs concerning the safety of vulnerable road users in Inner Melbourne. The scope of this paper is cycling safety in Inner Melbourne and is based on research reports commissioned by RSAGIM.

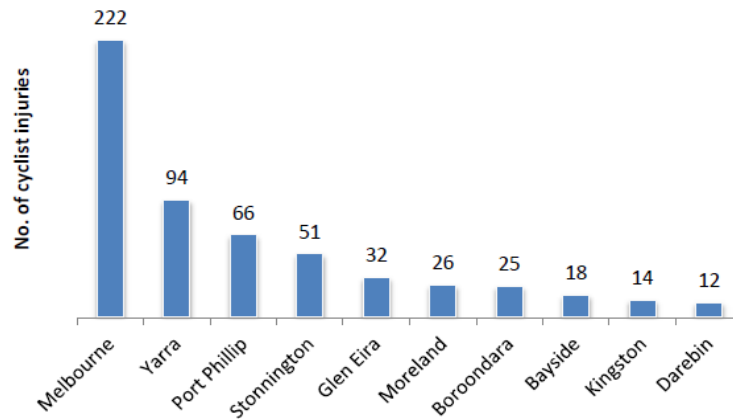
RSAGIM’s members and cycling stakeholders identified ‘car dooring’ as a priority area of concern for cyclists. However, the nature and extent of the issue had not been documented, nor had a systematic review been undertaken of the range of countermeasures available within Australia and internationally. For the purposes of this paper, ‘car dooring’ is defined as the unexpected opening of car doors into the path of cyclists.

The first stage of research commissioned by RSAGIM, from which the following section is drawn, had these objectives: to identify the extent of car dooring injuries to cyclists, and the context in which these crashes were occurring, and to identify what practices are in use elsewhere in Australia and internationally to reduce the risk of car dooring.(Munro, 2012)

The analysis of car dooring crashes was based on the CrashStats database of road crashes in Victoria. The dataset is comprehensive for fatal injury crashes but significantly underreports non-fatal injuries. There were 433 injuries to cyclists due to car dooring crashes between 2006 and 2010 in Inner Melbourne. Of these 111(26%) resulted in the rider being admitted to hospital. Car dooring is the most common crash type leading to cyclists being admitted to hospital. (Munro,pii) Whereas car dooring crashes contributed to 9.0% of all severity cyclist injuries across Victoria in the five years from 2006 to 2010 they were responsible for 19.4%

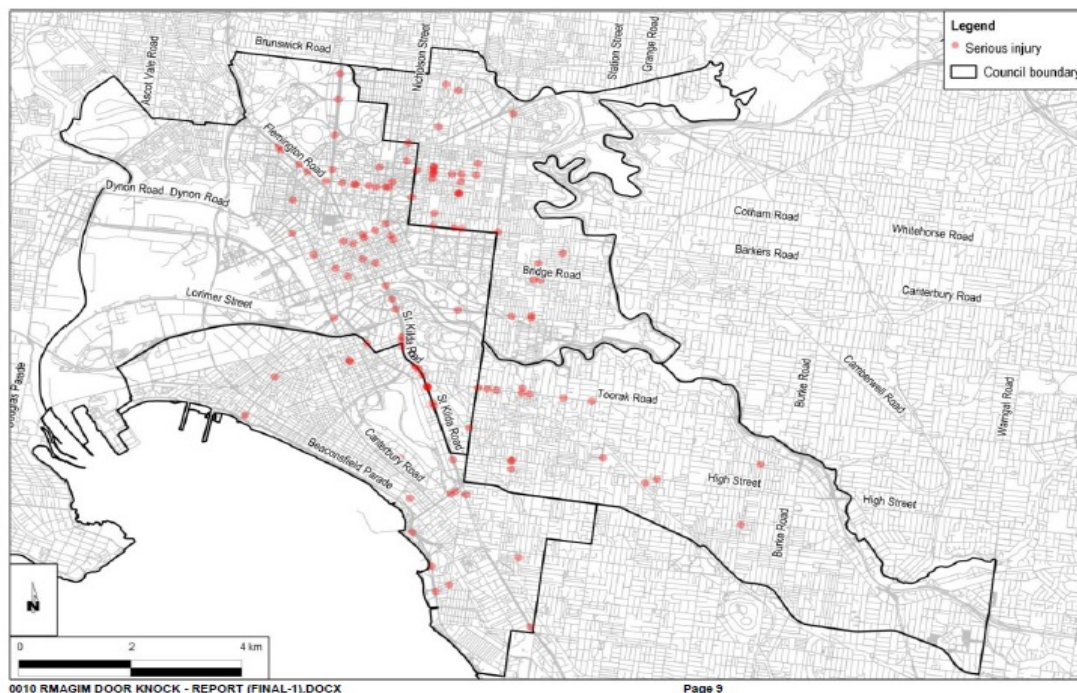
of injuries in Inner Melbourne. Of the 616 reported injuries to cyclists due to car dooring across Victoria, 433 (70.2%) occurred in Inner Melbourne. This is illustrated in the following table

Figure 1
Cyclist injuries due to car dooring crashed by municipality (2006 to 2010)



This geographical distribution, and concentration, of serious injury car dooring crashes in Inner Melbourne 2006 to 2010 is illustrated below

Figure 2



Car dooring crashes are also clustered along a relatively small number of streets: 30% of all crashes occurred on four streets (St Kilda Road, Collins Street, Chapel Street and Elizabeth Street).

The report noted that there is very limited evidence of the efficacy of countermeasures to reduce car dooring, and few countermeasures which have been developed to target car dooring crashes specifically. The absence of evidence or experience of implementing a car dooring intervention makes it difficult to identify a set of countermeasures which can

confidently be predicted will be effective. However, these general principles supported by wider road safety practices have the greatest likelihood of being effective: interventions should encompass at least two of engineering (infrastructure), legislation and enforcement, cyclist and driver training and behaviour change programs. It found that education programs should be focused on individual marketing towards drivers and cyclists in the areas with the highest rates of dooring crashes, and to those who open their doors most often (namely couriers and taxi drivers). (Munro, 2012) Countermeasures are classified according to infrastructure and non-infrastructure measures.

Non infrastructure measures: Road Rules

The Victorian Road Rules establish the legal requirements of all road users. Road Rule 269 *Opening doors and getting out of a vehicle* etc section (3) states unequivocally that

A person must not cause a hazard to any person or vehicle by opening a door of a vehicle, leaving a door of a vehicle open, or getting off, or out of, a vehicle. (Road Safety road Rules 2009, RR269 (3))

It was not possible to determine how many crashes result in infringement notices being issued since the road rule applies to a broad range of situations beyond dooring crashes involving cyclists.

Non infrastructure measures: mass media campaigns

The report repeats the findings of Elvik et al (2009) that mass media campaigns for road safety on their own in road safety have little effect. Mass media with enforcement, or individualized campaigns were most effective. The report also noted that ‘The consensus in the literature is that campaigns which involve personal communication to the action being addressed are most effective (e.g. Phillips et al 2009) and that in the design of any campaign ‘Behaviour change specialists should be consulted with regard to redefining the intervention in a manner consistent with best practice for behavior change campaigns’. These findings provided the direction for the second phase of RSAGIM’s research.

Countermeasures: infrastructure

Between the completion of the first stage and commencing the second stage of the research, several Inner Melbourne councils have installed a range of infrastructure treatments. Evaluations of these treatments are discussed later in the paper.

The context

Several circumstances relevant to public debate on car dooring occurred around the time of the publication of the RSAGIM report in 2012. The Coroner, in her November 2011 report into the death of James Cross in a car dooring incident in 2010 recommended that VicRoads ‘implement a communication campaign to educate motorists of the need to thoroughly check before opening their car door, and to increase awareness among cyclists of the need to remain vigilant when riding past car doors.’ (Coroner) In June 2012, the Victorian Minister for Roads, the Hon Terry Mulder MP, launched a sticker pack for drivers to actively promote to drivers and passengers that they should look carefully for bike riders before opening car doors. The pack is an information card holding a set of four transparent stickers and a bumper sticker.

In response to widespread concern in the cycling community, the Road Safety Amendment (Car Doors) Bill 2012 was introduced into the Victorian Parliament by Mr Greg Barber. The Bill was referred to the Economy and Infrastructure Legislation Committee of the Legislative Council for investigation. The Parliamentary Inquiry into the Bill generated a great deal of interest within the community, with the Committee receiving 94 written submissions and hearing from 7 witnesses at public hearings. RSAGIM used the recently published report as the basis of its submission and attendance at the hearings of the Inquiry. The Inquiry also generated considerable media interest. Although the Committee found no need for a change to the regulations since the offence already exists in the Victorian Road Rules, on 31 July the

Road Safety (General) Amendment (Car Doors) Regulations 2012 were made which increased the maximum penalty for a breach of Road Rule 269(3) from 3 to 10 penalty units. This equates to \$352. The Committee acknowledged that the penalties in place at the time it received its evidence were ‘insufficient and not proportionate to its potential risks and consequences’ and that the revised penalties more appropriately aligned with the gravity of the offence.

Victoria’s Road Safety Action Plan 2013-2016 includes priority actions on vulnerable road users and serious injury. Reflecting the heightened interest in the safety concerns of cyclists, the Plan provides the following strategic direction: ‘Provide cyclists with improved infrastructure and safer vehicle speeds to reduce their risk and support the uptake of sustainable travel modes.’

Second stage of research

The second stage of RSAGIM’s research took direction from the first; particularly the following observations: ‘The consensus in the literature is that campaigns which involve personal communication to the action being addressed are most effective (e.g. Phillips et al 2009) and that in the design of any campaign ‘Behaviour change specialists should be consulted with regard to redefining the intervention in a manner consistent with best practice for behavior change campaigns’. RSAGIM engaged Concepts of Change, behaviour change specialists in conjunction with IPSOS Research to undertake the second stage of the research. The objective of the research was to understand more about drivers’ perspectives (vis-à-vis cyclists) when they are parking, and also to test the one available tool to address car dooring – VicRoads bike stickers. The research sought to investigate whether the stickers encouraged drivers and passengers to look for bicycles every time they park and whether the stickers encouraged them to wait for them to pass before opening the door.

Methodology

The approach consisted of four main stages. Firstly, the data from car dooring incidents recorded by VicRoads was mapped. The next phase - understanding drivers and passengers – was an initial focus group with a test of the VicRoads stickers and a site visit to each of the three target streets. The test of ways to reduce car dooring was provided by enlisting people on the streets and providing those who agreed to attend a focus group with two different intervention types. Four focus groups and four in-depth interviews made it possible to test the different approaches. The study used a qualitative, focus group methodology plus some in-depth interviews to evaluate the value of the bike stickers and to explore other alternative or complementary interventions to reduce the incidence of car dooring by changing the behaviour of drivers and passengers. This approach made it possible to speak to a range of people in-depth about the impact of the intervention on their behaviour. It also made it possible to respond to issues raised by participants. Finally this qualitative approach also allowed for interactions between people with different viewpoints and helped to uncover underlying motivations and barriers.

Some findings from the focus group included that few had much interest in putting the stickers on their car, either because they didn’t think they would work, or because they didn’t like the idea of blemishing their vehicles. No participants knew that there was a fine for drivers involved in a car dooring incident, and thought this was important information. However, even though participants were interested to learn of it, the majority of people felt that the fine per se would not change behaviour. (Concepts of Change, 2013)

The research also showed that different roads have different attributes and different patterns of behaviour. This needs to be understood as there may be different external measures needed (e.g. Chapel Street all day but a focus on lunch times and also some on weekends, Brunswick Street – mostly spread over the day on weekdays, and St Kilda Road in mostly in the morning and evening weekday peaks).

The research found that people, in general, do not understand the phrase ‘car dooring’. The diagnostic testing showed that an intervention solely based on stickers is unlikely to get drivers and passengers to look for cyclists before and while opening doors and, if cyclists are seen, they are not likely to wait until cyclist have passed before opening the door. It is important to state some facts as most people have no idea of the frequency of car dooring incidents. Personal stories are more likely to bring about change and not wanting to injure someone is probably a better incentive than fines. There is a need for constant subliminal reminders. Participants believed that a total culture of awareness of the issues of car dooring and associated preventative behaviour is needed to effect widespread behaviour change.

Conclusion of

The existing visual reminders to avoid car dooring (stickers) in their current format, distributed in isolation, do not lead to most people avoiding car dooring. The parking task is complex, particularly on busy streets, and often detracts from the concentration on avoiding car dooring. ‘Internal triggers’ that could be encouraged (different for different people) that might make it easier for people to always check for cyclists when they are parking and there are a series of external triggers that people would perceive to be useful which have been recommended.

The key to reducing the incidence of car dooring is to implement a package of measures which include information (including what the term means, incidence, impact, liability, associated fines); personal prompts including visual, audible and tactile reminders which people can choose according to what best suits them; community wide reminders – including media messages, inclusion in driver’s licence tests, through schools, workplaces and organisations; effective enforcement and pricing.

The key message needs to be tested further but is likely to be that car dooring is unacceptable because it hurts people. Any measure or message needs to encourage people to talk about the issue of car dooring with friends, family, colleagues and others with whom they interact. It is recommended that the next step is to formulate the package of measures and work out ways in which several measures can be implemented at the same time to work towards creating a culture of reducing car dooring. In determining a course of action, it will be important to prioritise those that are likely to have the greatest diffusion effects, particularly those involving existing networks or people.

Recommendations

The research showed that to change culture a multi-faceted approach is needed. Such an approach might involve careful media messages (focusing on stories rather than threats, but also giving information), multiple prompts (some visual, some audio, some tactile for people who respond to different mechanisms), possible increasing focus of the effects of car dooring in driver’s licence tests, and the use of public opportunities to initiate conversations (e.g. at schools, at events which might demonstrate the speed and distance covered by cyclists compared to the time it takes to open a car door). The approach also needs to focus on a message of ‘not hurting someone’ rather than on fines.

It is also recommended that any of these measures are tested before implementation using simple tests such as diagnostic testing to avoid the creation of mechanisms that do not fulfil the intended function.

Countermeasures: infrastructure

While these research projects have been underway, RSAGIM member councils have introduced a range of infrastructure treatments which have been evaluated.

The evaluations are prefaced by this qualification: as the time elapsed since the projects were built is short (generally one to three years) there is insufficient crash data to draw conclusions about safety outcomes. In almost all cases there is very limited data available before the projects were built from which to draw comparisons. As a result, the conclusions reached by

this evaluation are necessarily subjective, are limited by the data that could be collected, but are based on the disparate information collected for each project as part of the fieldwork.

Any road safety intervention will have as its ultimate objective the reduction of injury burden from road trauma. However, measuring any change – and attributing this change to the intervention is exceptionally difficult. (p55)

City of Melbourne: Clarendon Street (East Melbourne)

A brief evaluation of improvements recently made to the on-road bicycle lanes on Clarendon Street (East Melbourne) in August and September 2012 was commissioned by the City of Melbourne from which this section is drawn. The car dooring zone is the ‘zone within which a car door projects when fully open extends to around 1.0 m from the outer edge of a vehicle for typical 4-door cars and up to 1.3m for 2 door cars. Most guidance for cyclists recommends that they ride at least 1 m away from the side of parked cars. To avoid colliding with a door the centerline of the rider will need to ride around 1.3 m away from the outer edge of 4-door cars in order to avoid the handlebars, pedals or body from hitting a fully open door. (p1)

Video observations were made of cyclists riding along Clarendon Street, in both the northbound and southbound directions, before and after the buffer was installed. The revised bicycle lanes had the design intent of encouraging riders to track farther from parked cars in order to reduce the risk of dooring-related crashes. Cameras were mounted to observe actual movements such that they would be inconspicuous to the casual observer, and so highly unlikely to influence cyclist or motorist behaviour

The bicycle lanes in both directions between Victoria Street and Wellington Parade were upgraded:

- a 0.6 m painted buffer was installed between the kerbside parking and the bicycle lane,
- a 1.5 m bicycle lane was installed,
- a 0.6 m painted buffer was installed between the bicycle lane and traffic lane, and
- green surface treatments were added to the bicycle lane across signalised side streets.

This design replaced the 2.0 m conventional bicycle lane that existed previously. The evaluation focussed on the effectiveness of the painted buffer between the parking bay and the bicycle lane, which had the design intent of encouraging riders to track farther from parked cars in order to reduce the risk of dooring-related crashes.

Two research questions were posed in this evaluation:

1. Does the buffer between the parking and bicycle lane change the average lateral cyclist tracking position?

2. Does the buffer between the parking and bicycle lane reduce the proportion of riders travelling within 1 m of parking?

The evaluation found that in all cases there is a statistically significant difference in cyclist lateral tracking; the average cyclist tracks 0.4 m farther from parking in the northbound direction and 0.29 m farther from parking in the southbound direction. Furthermore, the proportion who ride within the dooring zone (defined as 1 m from the parking bay) decreases by 23% in the northbound direction and 33% in the southbound direction. It is noted that the proportion riding in the dooring zone is much greater in the northbound direction than southbound, even after the treatment (66% do so travelling north, compared with 22% travelling south). This is likely to reflect the different parking occupancy on each side of the road; particularly during the AM period there was much lower parking demand on the northbound side of Clarendon Street. In addition, riders travelling north uphill will be travelling slower and are likely to be more comfortable riding closer to parked cars (as they will be able to stop or swerve more readily). The results suggest that it would be reasonable to expect a decrease in car dooring incidents.

Countermeasure infrastructure: City of Port Phillip, Fitzroy St (St Kilda)

The following treatments installed in the City of Port Phillip were the subject of an evaluation by VicRoads from which the following findings are taken.

The bi-directional cycleway on the north side of Fitzroy St forms part of a longer route, partially constructed, connecting the Bay Trail to the south through Albert Park and Cecil Street to the CBD of Melbourne. In the five years prior to the installation of the cycleway there were six crashes along Fitzroy Street reported to Police that involved cyclists colliding with parked car doors. Four of these crashes resulted in serious injuries to the cyclist. This was the most frequent crash mode involving cyclists.

Cycling demand has grown rapidly since the cycleway was installed; the number of cyclists in the year following the completion of the cycleway (2011) was 48% to 135% greater than in the year preceding the cycleway (2009) during the weekday AM peak period. 94% of cyclists feel the cycleway is better or much better than the road, although 86% reported problems using the cycleway – mainly conflict with cars at intersections. Children were observed using the separated lane, usually with their parents. It is unlikely children would have been present cycling on Fitzroy St without the separated lane. The bi-directional lane is an unfamiliar treatment for road users in Melbourne. Motorists were unprepared for looking out for cyclists heading in the ‘wrong’ direction, and there was conflict at intersections. The lane has since been modified, especially at the intersections, to address the concerns of all road users. The lane also operates in relative isolation and the connections to the cycling network are not strong.

Countermeasure infrastructure: City of Port Phillip, Cecil Street (South Melbourne)

The kerbside protected bicycle lane between York Street and Whiteman Street is strongly supported by the cyclists using it. However, 78% reported problems using the lane varying from conflict with vehicles entering or exiting driveways, vehicles parking across the bicycle lane and pedestrians walking in the lane. In addition, the hostility of the road network to the north (Clarendon Street and Spencer Street) is likely to represent a significant hindrance to rapidly growing cycling demand along Cecil Street.

A growing number of different infrastructure treatments to engineer out car dooring to create a safer environment for cyclists are being implemented across Inner Melbourne. Different roads require different treatments according to use, context, safety of all road users, and connections to broader networks. Each road must be assessed independently. In order to assess the contribution of these treatments to reducing trauma to cyclists, it would be useful for the evaluations to be repeated in subsequent years. The evaluations suggest that isolated treatments that are not connected to a wider network compromise the potential contribution these treatments could make in increasing safety across the cycling network.

Conclusion

RSAGIM’s work on car dooring responds to the particular road safety context of Inner Melbourne. However, the research has wider application. To address the real and perceived safety barriers to cycling, a multi-faceted approach to car dooring is needed that includes infrastructure, behaviour change and enforcement of existing road rules. RSAGIM’s work complements the infrastructure countermeasures that are being implemented by its member councils. A significant body of experience in a range of infrastructure treatment that address car dooring is developing in Inner Melbourne. The impact on cycling trauma is yet to be definitively shown.

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- Bicycle Network Victoria’s contribution on the Steering Committee for the research projects

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