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## Accident Research Centre

### ROAD SAFETY ISSUES FOR PEOPLE FROM NON-ENGLISH SPEAKING BACKGROUNDS

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**Abstract:**

Research investigating the differences between road users from a non-English speaking background (NESB) and the English speaking population (ESB) is inconclusive. Other variables such as socioeconomic status, education level, employment, residence in areas of high population density and duration of residence may be as important or more so as a predictor of crash involvement than ethnicity. Statistics should also be analysed to take account of exposure, such as unit of travel or number of trips taken.

As crash statistics databases maintained by the Police do not include an ethnicity variable, the aim of the project was to examine crash involvement of NESB groups using other datasets. Hospital injury databases code preferred language and country of birth, but contain too many 'unknowns'. Other Australian Hospital datasets were investigated, but were not coded any more completely than Victoria's or the number of NESB cases was too small. The National Coronial Information System, various comprehensive and third-party insurance databases, and ABS data sources were also not able to provide useful or complete information to determine the crash involvement of NESB groups.

Generating a more complete set of hospital data is the most attractive option for collecting data, possibly concentrating on a particular hospital or network in a high density NESB location. The time needed to accumulate sufficient data would be dependent on the number of hospitals participating and the percentage of their clients who can be classified as NESB.

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**Key Words:**

NESB, ethnic, safety promotions, language

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## EXECUTIVE SUMMARY

Most research comparing road users from a non-English speaking background (NESB) with those who speak English has examined self-reported attitudes and behaviours, rather than crash involvement. NESB groups have exhibited lower levels of restraint use (particularly child restraint use) in a number of studies. NESB groups may have a lower level of knowledge about the dangers of some behaviours (e.g. speeding and drink driving), but this is not always accompanied by more frequently displaying dangerous behaviour. One Australian study that did assess crash involvement used self-report data and found that NESB women were at a greater risk than their English-speaking peers.

Other variables such as socioeconomic status, education level, employment, residence in areas of high population density, and duration of residence may be at least as important as ethnicity as a predictor of crash involvement. However, many individuals from non-English speaking backgrounds – particularly new arrivals – are often disadvantaged by more than one of these factors as well as having poor English skills. Statistics should also be analysed to take account of exposure, such as unit of travel or number of trips taken.

While most NESB-specific safety campaigns have not been evaluated, there is general agreement that care should be taken in designing the materials rather than simply translating English pamphlets. In designing promotions the reasons underlying any observed differences in the populations should be investigated. Ideally assistance should be sought from the relevant communities in focus-group testing to ensure that materials are appropriate and the meaning of the message is clear. Visual materials should use symbolic or pictographic presentations rather than text to increase their generalisability. Finally, the effectiveness of campaigns should be evaluated to ensure that the message and targeting are efficient and relevant.

As crash statistics databases maintained by the Police do not include an ethnicity variable, the project aimed to examine crash involvement of NESB groups using other datasets. Two separate hospital injury databases – the Victorian Emergency Minimum Dataset (VEMD) and the Victorian Admitted Episodes Dataset (VAED) – code preferred language and country of birth respectively. However, in neither case is the recording of either of these variables sufficiently complete for a meaningful analysis.

Other Australian hospital datasets were investigated, but were not coded any more completely than Victoria's or the number of NESB cases was simply too small for a meaningful analysis. The National Coronial Information System, various comprehensive and third-party insurance databases, and ABS data were also unable to provide useful or complete information to determine the crash involvement of NESB groups.

Generating a more complete set of VEMD or VAED data is the most attractive option, possibly concentrating on a particular hospital or network in a high density NESB location. The time needed to accumulate sufficient data would be dependent on the number of hospitals participating and the percentage of their clientele who can be classified as NESB.

A less rigorous alternative would be to compare the crash statistics between LGAs that have high and low NESB densities. NESB density and composition for individual LGAs is available in Census data. A difficulty with this approach would be matching the LGAs for variables other than ethnicity.



## 1.0 INTRODUCTION

### 1.1 BACKGROUND

A person from a non-English speaking background (NESB) can be defined as someone who speaks a language other than English at home as their main or preferred language. They may have been born overseas and be a recent arrival or have been a resident for a lengthy period of time. They may be the first generation of their family to be born in the new country or their family may have been residents for multiple generations.

There may be reasons other than the length of time the family has resided in Australia for English not being the primary language spoken in the home. The family may be resistant to learning or practising their English, feeling that they do not want to be assimilated into a different culture (Smith, 1993). The family may lack the resources needed to receive language instruction (e.g. time, finances or distance), or simply want their children to become fluent in their mother-tongue. There is also a persuasive ease, familiarity and convenience in continuing to use one's first language.

The available resources and extent of any support network will also contribute to the likelihood of learning English. For example, a migrant who enters Australia under the humanitarian program, such as a refugee, is likely to have access to less money and help compared with a migrant who enters under sponsorship of another family member already resident in Australia. The period 1991-1995 saw just over 12 000 individuals take up residence in Victoria under the humanitarian program, 20% of Victoria's overall intake (Multicultural Affairs Unit, 1996). Another potential contributing factor to English not being the preferred language is that it is considered to be a particularly difficult language to learn (Walker, 1999).

There are a range of factors which may apply to people from non-English speaking backgrounds (NESB) that could affect their crash involvement and other road safety issues. Such factors include:

- difficulties in reading English;
- limited experience with the Australian road environment;
- having learnt to drive in a different road and/or regulatory environment;
- different attitudes to the Police and other authorities.

Little is known about the crash involvement of NESB road users. Research conducted in New South Wales, Victoria and Western Australia has examined differences in attitudes and behaviours in relation to restraint use among different ethnic groups. There is also some US-based research linking crash statistics with various demographic Census variables such as country of birth. However, there is little research specifically linking preferred language with crash involvement.

## **1.2 AIMS**

This study aimed to:

- investigate the crash involvement of people from non-English speaking backgrounds;
- identify specific road safety issues for particular NESB groups;
- assess the adequacy of current road safety communications for these NESB groups and, where necessary, recommend improvements.

## **1.3 METHOD**

### **1.3.1 Stage 1 – Literature Review.**

A literature review was to be undertaken to identify previous Australian and international research in this area. This will provide guidance to the remainder of the project by identifying what is known (and therefore needs only confirmation) and what needs more thorough investigation.

### **1.3.2 Stage 2 – Estimation of Injury Rates**

There are no variables which can identify the non-English Speaking Background of road users in the Victorian Road Crash Database. However, place of birth and preferred language spoken are coded by hospitals for patients presenting to casualty sections, including those admitted for road-related injury. These variables form part of the Victorian Emergency Minimum Dataset, which is managed by MUARC.

In this Stage, the hospital-based injury data was to be compared with census data to see if there are different rates of road crash-related injury according to NESB group. Where possible, these comparisons are to be conducted separately for road user type and age group.

## 2.0 ROAD SAFETY ISSUES FOR NESB GROUPS

Given their potentially different upbringing and cultural background, the road user behaviour of NESB groups may differ from the pattern observed in the general population. Laws and transport systems differ between countries, as do training schemes and licensing requirements. Road user behaviour differences between NESB groups and the general population may be reflected in a differential involvement in crashes. Any differences may suggest that specific-issue campaigns need to be directed at particular NESB groups rather than the general population as a whole.

### 2.1 ROAD USER BEHAVIOUR

An important initial question is whether there are any general differences in road user attitudes between cultures. In 1989, a series of studies were reported that compared drivers from the United States, Spain and West Germany. Sivak, Soler and Trankle (1989a) asked male and female city drivers across three age groups (19-21, 35-45, and 65-75) in the three countries to assess their own driving abilities in relation to what they perceived was the skill level of their peers. A 14-item questionnaire examined self-perceptions of how safe and responsible the drivers thought they were as well as self-assessing their general level of driving skill – both in absolute terms and in relation to their perception of their fellow drivers.

The study found that a majority of participants in each of the three countries viewed themselves positively on all driving-related scales. Generally, the US drivers had higher opinions of their own driving abilities than both the Spanish and German drivers. Older subjects tended to assess their driving most positively, followed by middle-aged and younger drivers, and males assessed themselves more positively than did females. In both cases the effects remained after controlling for any effects of driving experience.

An estimate of driver risk-perception (Sivak, Soler, Trankle & Spagnhol, 1989) was conducted in the US, Spain, West Germany and Brazil using 100 colour slides. Fifty of the slides were taken from the driver's point of view and 50 as overviews of traffic scenes from vantage points such as bridges. The drivers used a seven-point scale to rate the risk of an accident occurring in the scene depicted. US drivers tended to give the lowest risk-ratings, while Spanish drivers tended to give the highest. Younger drivers from all countries tended to report lower risk than the middle-aged or older groups.

In a further study (Sivak, Soler & Trankle, 1989b), a simulated intersection crossing was presented on video. An electronic car had to cross two lanes of moving traffic (2-way). The driver had to assess the gaps in the traffic and control when the car moved off. Drivers received feedback on whether their car succeeded in crossing the intersection or collided with another car. Again, male and female drivers from a range of age groups were tested in Spain, the US and West Germany. Within the limited time allowed the maximum possible number of crossings was 20. Only 14 of

the 180 drivers (6 from each of the US and Spain, and 2 from West Germany) made 20 attempts. Only two (both US drivers) made 20 successful crossings. West German drivers attempted fewer crossings, had a higher probability of success, and employed greater safety margins. Younger drivers attempted the highest number of crossings, followed by mid-aged, then older drivers. The younger drivers also allowed less clearance between their virtual vehicle and the others in the test than did the mid/older individuals (as a group).

The Sivak studies provide a comparison between cultures and suggest that the US drivers tend to be the most confident, but not necessarily the safest drivers. However, this is not a valid comparison of English versus non-English speakers and certainly does not provide a picture of a cultural group *within* another culture – the focus of this project. Likewise, US drivers are not necessarily representative of Australian drivers. There have been some Australian comparisons made between different cultural groups in relation to road user behaviour, mostly regarding restraint usage.

In a bid to compare NESB groups and Anglo-Australians in terms of seat belt use, Walker (1991) counted the numbers of restrained occupants in cars passing through three different intersections in Sydney. The test sites were chosen for their proximity to particular ethnic populations and the drivers were interviewed to ascertain their ethnicity. A significantly lower level of seatbelt use was found amongst the occupants of cars driven by individuals from each of the Italian, Lebanese and Vietnamese communities when compared to cars driven by Anglo-Australians. Particular concern was expressed at the non-compliance of children sitting in the back seat. Walker suggested that the lack of restraint wearing in the back seat is often because the child is not within sight of the driver.

Imberger and Rowe (1997) conducted a pilot study of restraint usage in Melbourne based on Walker's (1991) Sydney research. Three intersections in high-density ethnic areas were chosen and all stationary cars were approached. If the vehicle had a Cambodian, Vietnamese or Chinese driver and at least one child passenger, an interviewer asked the driver a series of questions regarding bicycle ownership. Simultaneously, a bilingual confederate estimated the ages of any children and noted whether they were suitably restrained. The interviewer guessed the ethnicity of the driver.

Two-hundred and twenty-eight cars containing 294 children were assessed. Over 91% of the children were Vietnamese. Across all age groups the restraint wearing rate was lower than that recorded across the Victorian population in 1994, but higher than the rate noted by Walker (1991) in Sydney. Inberger and Rowe (1997) also reported that a higher proportion of the Melbourne children were technically wearing their restraints incorrectly in comparison to the Sydney study, but point out that most or all of these children would have received some safety benefit from the restraint anyway. The authors stress that this research was a pilot study and so many factors were not controlled, such as the absence of an English speaking background (ESB) control group.

The David Hides Consulting Group (1998) looked at child restraint usage and attitudes to restraints by "culturally and linguistically diverse" (i.e. NESB) groups and Aboriginals in Western Australia. As the current project intentionally excludes

Aboriginal road user behaviour, only the NESB groups will be described here. The data does not include the behaviour of English-speaking road users, but does involve speakers of Chinese, Vietnamese, Arabic, Spanish, and the former Yugoslavia (Serbian, Croatian, Bosnian).

Face-to-face interviews were conducted by bilingual workers from the relevant communities in preference to experienced interviewers per se (David Hides, 1998). Two-hundred NESB parents were interviewed, which included a sample of 310 children aged 3 years and under. Overall, the knowledge of the type of restraint recommended for a particular age group decreased as the age of the child increased, but knowledge of the type of restraint that should be used for 0-2 year-olds was 'quite good'.

The cost of children's car seats was found to be a problem for NESB drivers (David Hides, 1998). Car overcrowding such that there were not enough restraints for all occupants was also indicated to be a contributing factor to lower levels of restraint use. A majority of the respondents were aware that it is illegal for a child in either the back or front seat not to be strapped in while travelling. Not strapping children in for short distance travel was identified as common (80% of NESB respondents believed this was an acceptable behaviour). Essentially all of the NESB respondents used seat belts themselves, 97% agreed that every passenger in a motor vehicle should wear a seat belt, and 89% thought children were not safe in the back without being strapped in.

In 1994, EMD Multicultural Marketing and Management (1996) administered a survey in Sydney via bilingual interviewers to examine the attitudes and self-reported behaviours of NESB groups. One hundred and fifty drivers were sampled from each of the higher density Vietnamese, Arabic, and Italian communities, along with 150 drivers of English speaking background (ESB) from the same areas. Speeding, drink driving, driver fatigue, and seat belts and child restraints were the focus of the research.

Based on stated behaviour, the ESB drivers were more likely to speed and more likely to be booked for the offence, although they rated their chances of being caught speeding at the lowest level (EMD, 1996). All groups saw speeding/driving too fast as the most likely cause of road accidents and injury, and alcohol/drink driving as the next most likely cause. The ESB and Italian groups were more likely to think that driving skill allowed for travel at faster speeds, although all groups tended to think that the current speed limits were appropriate. The ESB group tended to see less danger in speeding.

The Italian and ESB drivers were more likely to be regular drinkers than the Arabic or Vietnamese groups, and the ESB group was much more likely than all groups to drink and drive (EMD, 1996). This is despite the fact that the ESB group had a higher awareness of BAC levels, the illegality of drink driving and the level of penalties for this offence.

The self-reported use of seatbelts while driving was high across all groups (EMD, 1996), although not so high for use while travelling as a passenger. Each of the four ethnic groups acknowledged the safety aspect of restraints for themselves and

children, and all groups had a good knowledge of the illegality of non-compliance with restraint use. The ESB group had the highest level of knowledge in terms of safety and illegality, but by far the lowest level of belief that they would be caught not using a restraint.

In general, the NESB drivers in EMD's (1996) research were found to have a lower level of education than the ESB drivers. The ESB group had the highest level of recall for promotional materials. Promotions regarding bicycle and pedestrian safety were recalled minimally by NESB drivers.

Pedestrians and cyclists are also road users, and children from non-English speaking backgrounds are more likely to walk or cycle to school than be driven or catch public transport (Carlin, Stevenson, Roberts, Bennett, Gelman & Nolan, 1997). These children are therefore exposed to an increased risk of being hit by a car than other children.

In earlier work, bilingual interviewers spoke to 874 people from eleven different ethnic groups and 114 people of English speaking background (ESB). Yann Campbell Hoare Wheeler (1988) determined that some of these communities were particularly at disadvantage in terms of road safety information access. There was a general lack of understanding among the NESB groups in the areas of seat belt and child restraint legislation, who is liable for non-compliance of restraint laws, BAC levels and the likelihood of being caught drink driving, pedestrian rights, and speeding penalties. While this research is now somewhat dated and there have been many advertising and education campaigns since, there is some consistency with more recent work, particularly in relation to restraint use.

Ethnicity as a factor in road user behaviour has also been investigated in the United States. Most of the research concentrates on Hispanic, Black, White and American Indian. Other cultures are usually not included or are grouped into a single 'other' variable.

Using a questionnaire, Shin, Hong and Waldron (1999) looked at seat belt usage differences between non-Hispanic White, Hispanic, and African American high school students (15-20 year olds, all of whom were drivers) from several different schools. They found that type of school attended was a stronger predictor of seat belt use than individual socioeconomic status or ethnicity. Students of public schools in poor, minority neighbourhoods registered lower rates of restraint use than teenagers who attended private schools or middle-class public schools. Having parents of lower education and being African American were also associated with lower rates of use.

Shin, et al. (1999) also found a minor contribution of fatalism – the concept that there is no point in taking precautions as one does not control one's destiny anyway. While such an attitude is often associated with various Eastern religions, it was found that minority and lower socioeconomic status were more likely to be associated with fatalism. Inner city students were more likely to say that their degree of restraint use was influenced by confidence in being able to avoid crashes or enjoyment of risk taking, rather than being influenced by fear of injury. The inner city students also reported that their parents often did not use their seat belts either at the time of the survey or during the respondent's childhood. They also recalled that they had been

told by their parents to use their seat belts less frequently. Somewhat surprisingly, restraint usage by peers was not found to influence the driver's wearing of seat belts.

Crash injury data for American Indians, non-Indians of the same rural area, and urban groups similar in other demographic variables was examined by Grossman, Sugarman, Fox and Moran (1997). They found that the factors in increased risk to rural drivers included lower restraint use, greater prevalence of drunk driving, and higher vehicle speeds. Rural American Indians were more likely than other rural drivers to not wear a seat belt and to drive while drunk. However, it may not be a question of race, as urban American Indians had a similar pattern of belt usage and intoxicated driving to the rural non-Indian drivers. Rather, it would seem to be a case of lower socio-economic environment. Another complicating factor is the fact that Indian reservations are sovereign states, and so state laws on seat belt use do not apply while the driver is on the reservation.

The 1995 American National College Health Risk Behaviour Survey questioned 4838 college students on a variety of safety issues. Respondents were categorised as Black, White or Hispanic. Almost all of the students drove cars, and of these 9.2% rarely or never used a seat belt while driving (Douglas, Collins, Warren, Kann, Gold, Clayton, Ross & Kolbe, 1997). Male drivers in general and White drivers were significantly more likely to not wear a seat belt. A third of the motorcycle riders rarely or never wore motorcycle helmets, with no ethnicity-based difference in the wearing rates. Just over a quarter of the drivers said that they had drunk alcohol and driven a car at least once in the preceding 30 days. Both White and Hispanic drivers were more likely than Black drivers to have driven a vehicle after drinking.

Some other safety behaviours did not differ as a function of ethnicity, such as weapon carrying, gun carrying, and physical fighting (Douglas et al., 1997). However, consistent with their lower level of vehicle safety, White students were significantly more likely to report that they smoked cigarettes, were current frequent users of alcohol, were binge drinkers, used marijuana or cocaine, and practiced unsafe sex.

Caetano and Clark (2000) looked at drink driving by Hispanic, Black, and White drivers. They found that Hispanics and Blacks were more likely to be arrested for driving while under the influence of alcohol (DUI) than Whites, but caution that their data does not take into account annual distance travelled or the possibility that arrest rates may be inflated by police discrimination. They report significant inter-relationships among alcohol consumption, ethnicity and socio-environmental factors. They also point out that US-born Hispanics are three times more likely than Hispanics born abroad to engage in drinking and driving (again automobile ownership and distance travelled may complicate this picture).

While this research describes the self-reported attitudes and behaviours of drivers, Preece (1994b) points out that simply devising messages in an attempt to educate drivers may be ineffective. A more central issue is to determine the *reasons* for non-compliance. For example, further information regarding the safety of specialised child restraints will not improve the situation if the chief problem is that NESB families can not afford to purchase such products.

### **2.2.1 The relationship between ethnicity and other factors**

Some of the research just described suggests that while there may be ethnicity differences in road user behaviour and attitudes, other factors may interact with NESB status. An often-mentioned factor tied to crash involvement and ethnicity is socioeconomic status. For example, Carlin et al.'s (1997) examination of Australian children who walk to school found a difference between NESB and ESB groups. However, other subcategories of those who walk were found to come from low socio-economic backgrounds and those whose families do not own cars. Being older, male, and having a mother with a low level of education were also associated with increased unaccompanied road crossing. Carlin et al. suggested that these subcategories may interact with non-English language skills.

In another Australian example, Yann Campbell Hoare Wheeler's (1994) study of the effectiveness of a child restraint use media campaign found that 76% of NESB parents were from blue collar backgrounds and 59% were unemployed.

Adams, Bennison, Openshaw and Bingham (1990) looked at the changes in the leading causes of violent deaths for the period 1979 to 1984 for young Americans, specifically testing a race variable (Blacks, Whites and all other non-Black minorities). Generally, there was an overall decrease in the number of deaths involving motor vehicles, but there did seem to be a race effect. However, the authors say that this is likely to be tied to socioeconomic status. Other potential factors were also identified. For example, many Indians live in rural areas and some rural deaths occur due to the increased travel time and distance to medical aid. Furthermore, more white youths have access to vehicles, own their own cars and do more driving.

Using observational data collected from 400 separate sites across Ohio, Shinar (1993) determined areas of high and low seat belt use. One-hundred and seventeen sites were deemed to be suitable as either high or low usage areas, 65 with low usage and 52 of high usage. Employing Census data for these sites the characteristics of the resident populations were determined. Race (Black, White, or Other) was significantly associated with belt use on its own, however when considered in context with other factors such as socioeconomic status, its contribution was not significant.

Studies that have found an effect based on race may have an artefact of other variables that correlate with race, such as education level, income, profession and possibly people's basic belief systems (Shinar, 1993). Shinar used demographic data to estimate belt wearing compliance rates between the various segments of the population, and suggests that the relationships found are conservative and the effects would be even stronger if the actual behaviour of drivers was observed. Shinar also notes that the census method does not allow for those commuters who pass through the measurement area.

Low restraint use sites were characterised by populations with lower proportions of elderly, greater proportions of people with less than high school education, more blue-collar workers, more Blacks, fewer households with children, and fewer and less expensive single homes (Shinar, 1993). Most of the difference was accounted for by socioeconomic status and age of the population.

LaScala, Gerber and Gruenewald (2000) investigated the possibility of a relationship between the sites of pedestrian injuries and bar locations in an area of San Francisco. Census data was used to determine the demographics of the area, including the breakdown of an ethnicity variable into Blacks, Hispanics, Asians and non-Hispanic Whites. Ethnic variables were found to be unrelated to the rates of pedestrian injury in a preliminary analysis, and so were excluded from the final analyses.

While the ethnicity-related variable did not correlate with pedestrian injuries, LaScala et al. (2000) found that other demographic variables often associated with ethnicity did. Injuries in pedestrian-involved collisions were most likely to occur in areas of the city with a greater population density, greater proportion of males, lower proportions of children aged 0-15 years, higher unemployment, and a lower percentage of well educated residents (high school degree or better). Where alcohol use was implicated, the injury was more likely to occur where the density of bars was greatest. They point out that lower education may be associated with an increased likelihood of outdoor work, and unemployment with increased outdoor activity. Both factors would increase the exposure to the possibility of being injured as a pedestrian.

Becker, Hendrickson, and Shaver (1998) found that bicycle-related mortality for Hispanics is 1.5 times higher than the rate for non-Hispanics in rural areas of the U.S. When rural parents were asked why their children do not have helmets, Anglo parents were more likely to say there that there is not much traffic, while Hispanic parents were more likely to respond that helmets cost too much. The latter group had a lower average income. Differences in injury prevention attitudes were small and according to the author are more likely to be a function of other factors rather than ethnicity per se, such as socioeconomic background.

From the studies described, it would seem that ethnicity or not speaking English as a primary language is not a straight forward predictor of crash involvement or of risky behaviour. Socioeconomic status may be a better predictor. However, many individuals from non-English speaking background – particularly new arrivals – have the twin disadvantages of both poor English skills and low socioeconomic status.

## **2.2 CRASH INVOLVEMENT**

People from non-English speaking backgrounds may be at a higher risk of having a crash or being injured in a crash in English speaking countries for two reasons. Firstly, this group may not understand safety messages and secondly, people in these groups may behave in such a way as to put them at greater risk.

Possibly the only study to examine NESB status as a crash involvement factor for Australian drivers was Dobson, Brown, Ball, Powers and McFadden (1999), who sent a questionnaire to 2700 women throughout Australia. Rather than focusing on ethnicity, they were interested in a range of demographic variables, including country of birth. Women born in non-English speaking countries in two age groups (18-23 and 45-50 years old) were found to have a significantly higher risk of being involved in a car crash than Australian-born women, regardless of whether they lived in a

remote, rural or urban area (i.e. the result was not an artifact of greater accident involvement of or increased prevalence of an NESB population in urban areas).

No significant differences were found between the NESB and ESB groups on self-reported lapses, errors, violations or speeding (Dobson et al., 1999). Interestingly, however, relative to the Australia-born drivers, there was a significant increase on the driving lapses variable within both age groups for women born overseas but in English-speaking countries. It should be noted that only 5% of the younger drivers and 12% of the older drivers were women born in non-English speaking countries, which is not representative of the overall population. Also, all participants had to have driven a vehicle within the last six months. Dobson et al. concludes that “further research is needed...to understand the reasons for the higher accident rates among women from non-English speaking backgrounds before specific prevention programs can be developed for this group” (p. 535).

According to Baker, Braver, Chen, Pantula and Massie (1998), it was generally accepted that motor vehicle occupant death rates in the U.S. for the 0-19 year age group was lower for Hispanics and Blacks than for non-Hispanic Whites. However, these figures were not adjusted for exposure. The death rate per 100 000 people for under 4 year olds is highest for Blacks, then Hispanics followed by Whites. For children aged 5-12 years the differences are negligible. There is a spike in teenage white fatalities such that overall Whites do have the highest fatality rate.

However, Baker et al. (1998) say that when the figures are adjusted by unit of travel, Blacks have the highest fatality rate, followed by Hispanics and then Whites. The fatality rate adjusted for number of trips taken follows a similar pattern. When looking at teenagers specifically, the mortality rate per head of population is highest for Whites, then Hispanics followed by Blacks. However Hispanic teenagers have the highest fatality rate per mile travelled and per trip. Blacks occupy the intermediate position for miles travelled but have the lowest rate by number of trips.

Baker et al. (1998) suggests that the Hispanic rate is likely to be even higher since Hispanic ethnicity is under reported on death certificates. They also suggest that the ethnicity differences are likely to be more marked if urban versus rural residence is taken into account. Citing other research, Baker et al. says that parental education and income are highly associated with the use of safety belts and child restraints. Also that Hispanic drivers are more likely to have higher BAC levels, followed by Blacks, then Whites. Differences in vehicles and road types may be implicated. Free distribution of child car seats to low-income families has been found to be effective in increasing restraint usage (Louis & Lewis, 1997, cited in Baker et al.).

Most states in the US have special testing procedures for non-English speaking or illiterate licence candidates. These techniques include translations of the materials, oral examinations, and the use of interpreters. Alcee, Jernigan and Stoke (1990) found that drivers who took an oral examination were no different in terms of accident frequency or accident type to the overall driving population. While the option of taking an oral examination may appeal to an NESB individual, the research did not separate out non-English from illiterate candidates.

The 1997/1998 New Zealand Travel Survey (Land Transport Safety Authority, 1999) included 14 000 people from 7000 households. Interview respondents were categorised as European, Maori or Pacific Islander. The New Zealanders of European descent were found to travel and drive more, followed by the Maori and then the Pacific Islander group. However, socioeconomic differences and living circumstances (e.g. rural versus urban) play a part in these differences. New Zealand hospital statistics indicate that Maori drivers are three times more likely to be hospitalised as a result of a crash per distance travelled than European descendants. Pacific Islander drivers have only slightly less risk than the Maoris. These differences may, however, be more cultural than language-based. The report does not indicate that interpreters were used, or the language spoken by the individuals. These three groups are also well established in New Zealand, rather than being migrants or relatively new arrivals.

Bell, Amoroso, Yore, Smith, and Jones (2000) found that a minority race/ethnicity variable was significantly associated with increased risk for motor vehicle injury hospitalisation amongst US Army personnel.

### **2.3 OTHER HEALTH AND SAFETY ISSUES**

According to Australia's Health 1996 (Australian Institute of Health and Welfare), in general, immigrants have better health than the Australian-born population. This may be a function of the selection criteria imposed by the immigration department, where only "healthy" people are able to move to Australia. However, the mortality of these groups approaches that of natural Australians as their time of residence increases.

Of Australia's 1992 civilian workforce, 1.9 million individuals, or 25%, had a birthplace outside of Australia (Corvalan, Driscoll & Harrison, 1994). Foster and Rado (1991) cite an Age newspaper article (6/12/1990) which says that the Australian Council of Trade Unions "...estimates that more than one million Australian workers are in need of some extra literacy and English language training". The article goes on to say that deficiencies in language skills cost Australian industry \$6.5 billion a year in lost production, and that between \$10 and \$13 million of Australia's annual workers' compensation bill is attributable to injuries caused by poor English.

Corvalan et al. (1994) assessed 1211 work-related fatalities that occurred in the period 1982-1984 where country of birth of the decedent was known. Workers born overseas had marginally higher fatality rates (a ratio of 1.09) than those born in Australia. Across the three years of the study, the fatality rate fell for the Australian-born workers, while a nonsignificant increase was evident for workers born in other English-speaking countries as well as those born in non-English-speaking countries. The fatality rate of the migrants approached that of the Australia-borns with increasing time of residence in Australia. They suggest that this is a factor of language familiarity. It could also be argued that socioeconomic status may be involved, as increasing time in Australia would ordinarily be associated with increased wealth.



## **3.0 MEASURES TO IMPROVE SAFETY FOR NESB GROUPS**

Households where English is not the primary language may be disadvantaged compared to fluent English-speakers in terms of safety. They are exposed to the same or additional safety risks as English speakers, but are not always able to make the same use of safety education or public service safety messages. This touches on all facets of life, including work practices, safety in the home, general health messages, and road safety. It is therefore important to convey equivalent safety messages received by the majority of the population as well as specially targeted campaigns to those individuals who speak little or no English – for their own safety, and for the safety of others who interact with them, such as other road users.

Issues involved in ensuring that the NESB population receives the benefit of safety messages can be extended to other segments of the population. Similar problems of communicating safety messages are also relevant for native but illiterate English speakers (Smith, 1993) and those with sensory impairments, such as the deaf. In recognition of this there have been attempts to specifically reach NESB individuals with safety messages altered or tailored for their language and/or culture in a range of areas.

### **3.1 SPECIFIC CAMPAIGNS**

#### **3.1.1 Health**

Not speaking English can be a major barrier to obtaining health care (Dolman, Shackleton, Ziaian, Gay & Yeboah, 1996). A lack of understanding of questions asked by medical professionals (Sloan, 1995) or instructions as to the proper use of medication and follow-up care may jeopardise the safety of a patient. According to Dolman et al., there is significant evidence that providing culturally appropriate services is central to improving the health of ethnic groups.

The Royal Children's Hospital Safety Centre sponsors the SAFE (Safe Accident Free Environment) program, designed to target cultural minority and low socio-economic groups with safety messages. According to Minuzzo (1999), around 6000 people attend SAFE outreach activities run in 13 different languages each year. Minuzzo suggests that other programs or messages are often ineffective as agencies do not consult the relevant community for input to tailor the message or activity to suit their needs and beliefs. In 2000, the SAFE program will conduct a media campaign in 11 different languages regarding keeping children safe in the car, pedestrian safety, and bicycle safety (Minuzzo, personal communication). The campaign involves ethnic radio and newspapers, and community events. Festivals and community leaders will be involved to improve dissemination of the information.

In conjunction with SAFE, the Melbourne Metropolitan Fire Brigade plans to prepare and distribute targeted information to low income and ethnic groups in certain areas of Melbourne. The information focuses on burns and scalds, poisons, playground

safety and general fire safety. Peer presenters will be used to deliver the information to various community groups.

The Central Sydney Area Health Service conducted a specific program for first aid treatment of scalds for the Vietnamese, Chinese and Arabic communities. Ethnic radio, newspapers and posters were used to disseminate the information. Advice call centres were set up and staffed by community-specific people (i.e. where possible the staff were fluent in the target languages and from the specific communities).

Zandes (1999) relates an example of a culturally-specific intervention conducted in Victoria. The Islamic religion (which includes Turkish and Arabic communities) prohibits anything deemed to be harmful to an individual's health. Muslim religious leaders decreed smoking to therefore be against the Koran (Islam's holy book) and urged devotees to give up smoking. Muslims are expected to give up smoking during the daylight hours of Ramadan (a traditional time of fasting) anyway, and Zandes suggests a health message of "If you can quit for Ramadan, you can quit for good" (p. 1) could be used. Zandes also describes research investigating the reasons for continuing high levels of smoking (particularly among men) in specific NESB communities in Sydney (such as the Cambodian, Chinese, Greek, Russian, etc). This approach of investigating the reasons behind an "unhealthy" behaviour before attempting to target the community with a health message may lead to the development of more relevant and successful campaigns.

### **3.1.2 Workplace Safety**

Safer working practice messages may be communicated to people of NESB on an individual basis, for example through the use of a translator in a training program, or more generally, such as dissemination via posters on the shop-floor. A majority of safety signage and safety instructions are in English, and it is simply not always feasible to provide a wide variety of translations in the same place. For example, there is limited space on the side of a fire extinguisher to provide instructions as to its use and relevance for a range of types of fires in more than one language.

Even with a campaign designed to target workers who need specific programs, identifying those individuals may not be straight forward. Even if an individual indicates that they are bilingual, or that they understand instructions or safety material in English, this may not actually be the case (Bone, 1991). The audience should be tested for their understanding and gaps targeted for further attention. It is important that the individual realises that this is a case of being thorough rather than singling out the NESB workers for discriminatory purposes.

Wyatt-Smith and Castleton (1995) make the point that in many NESB cultures the worker is primarily responsible for their own health and safety, whether they are street sellers or factory workers. Without knowledge of their rights, it may not even occur to NESB workers that management in Australia has a responsibility to its workforce in terms of health and safety.

### 3.1.3 Road safety

Road behaviours and safety are a little different to health services and workplace safety in terms of NESB. Both of the former situations usually involve individuals, whether they are seeking information at a clinic or being trained to deal with hazardous materials. As such, translators with skills in the particular language can often be used. Road (and other community) safety messages are designed to reach a larger audience concurrently, indeed as many as possible with each campaign. Therefore, ideally a message will be culturally neutral to make it as generalisable as possible, or a different message should be constructed that is relevant for each cultural group. For financial and practical purposes, the former is obviously more attractive.

Various initiatives have been undertaken by road safety and government groups to improve road safety for the non-English speaking populations around Australia. In 1990, the Victorian Government launched a traffic safety program for a number of Victoria's ethnic communities. These groups included the Italian, Greek, Croatian, Serbian, Spanish, Macedonian and Arabic communities. The program was the result of research that suggested that Victoria's ethnic communities were having trouble understanding English road safety messages. Information was translated into languages that could be understood by the target groups. Brochures were to be produced and advertisements were to appear on ethnic radio and in ethnic newspapers. Information to be translated included advice on seat belts, child restraint requirements, speeding, and drink driving (Victoria Transport, 1990).

A federal road safety campaign was also launched in 1990 to target people of NESB (Anonymous, 1991) to reduce the annual toll of 2000 children injured and 150 killed in road crashes, where more than half of those killed had been unrestrained. The campaign involved increasing the number of languages for which printed material was available on road safety issues and producing videos in a number of languages.

In response to Walker's (1991) research showing that there was a lower restraint usage rate amongst the Italian, Vietnamese and Lebanese communities in Sydney, the New South Wales Road Traffic Authority (RTA) designed an advertising campaign targeting NESB groups. Separate campaigns focussing on child-restraint wearing were tailored for each NESB community. For example, the Italian campaign concentrated on the mother while the Lebanese campaign focused on the father, as these are traditionally the parents with the most influence within the different communities.

The content of the RTA campaigns emphasised the increased safety level when using restraints, the responsibility of the driver for ensuring that all passengers are restrained, and the fine for non-compliance. The campaigns were community based, accessing people through groups such as schools, agencies, and religious organisations. Additionally, the ethnic media was heavily involved and many unpaid articles appeared in various newspapers and on ethnic radio. The campaign lasted for four weeks.

The Yann Campbell Hoare Wheeler Consulting Group (1994) examined the impact of the RTA restraint campaign amongst the Lebanese, Vietnamese and Italian communities. Interviews were conducted before and after the campaign (participants

were matched rather than questioning the same individuals) by culture-specific interviewers in suburbs with high concentrations of the target language. Either the respondent (who had to be the parent of at least one child under 17 years old) or both of their parents had to be born overseas.

The evaluation showed that there was a significant increase in the number of people who acknowledged that travelling unrestrained in the back seat and travelling a short distance without a seatbelt were both dangerous. Respondents also agreed that it is the responsibility of the driver, as opposed to the parent, to ensure that children are restrained. However, the number of people actually using restraints did not increase after the campaign. Also, contrary to the advice of the advertising, seat belts remained the most common form of child restraint where a specialised restraint should have been used. Awareness of safety restraint fitting stations was the same over the period, but usage of such facilities increased. Disappointingly for the campaign, Yann Campbell Hoare Wheeler (1994) found that only 50% of their respondent parents thought that they might be caught and fined or lose demerit points if a child was not properly restrained. There was, however, a high awareness of the illegality of the action and that fines do exist.

The RTA campaign focussed on a variety of media including ethnic newspapers and community information dissemination, but the study could not judge recall of the advertising as there was competitive clutter from other campaigns, particularly those that had been on TV (the RTA campaign had not been on TV). "While four in ten NESB parents recognise the RTA print material which occurred in ethnic newspapers, the ethnic media do not appear to reach a high proportion of the more assimilated segments such as Italian parents" (Yann Campbell Hoare Wheeler, 1994, p. 34).

Derewlany (1991) also conducted an evaluation of the NSW RTA campaign, but used group discussions with NESB participants. The discussions ran for 1 to 1½ hours with around 10 people per group. It was found that there was a general dislike of government pamphlets. It was also suggested that children should be targeted as carriers of information to their parents. There was very little awareness of the RTA literature, and the pamphlets failed to interest the discussion participants or were deemed too complicated. Radio and community newspapers were found to be popular, as was the idea of education campaigns specifically targeted at school children. Community leaders also played an important role in dissemination of information. Young people generally had the greatest knowledge but were more likely to disregard the relevant laws.

At the conclusion of the RTA pilot program Preece (1994) suggested that a longer-running campaign may lead to more sustained behaviour change.

Over the 1996-1997 period many local councils in Sydney initiated road safety programs focused on the non-English speaking populations in their areas (RTA, 1997). For example, Canterbury City Council targeted senior citizens from Asian and Arabic communities. A high number of pedestrians were being killed on the roads, and many were elderly migrants who had the dual problems of language barriers and a lack of familiarity with local road conditions. Partner organisations such as the Community Development Team at the Canterbury Hospital and the Chinese Australian Services Society helped with translations and facilitated the transmission

of information. Information was disseminated through workshops that included slide shows and discussions. Local police also had media coverage through the campaign.

Holroyd, Fairfield and Auburn City Councils (all in the Sydney area) conducted an education program aimed at improving pedestrian safety in areas with a high NESB population. The need was identified through observational surveys and accident statistics (Parker, personal communication 12/7/00), which determined that the Chinese and Vietnamese communities should be targeted.

Relevant ethnic community groups were approached for initial advice and for pre-release market testing of the promotional items (Delli-Pizzi, 1999). The materials consisted of cartoon-like pictures depicting correct and incorrect behaviours, and were distributed through community groups and events, ethnic newspaper advertising, and via restaurants in the form of place mats (Parker, 1999). According to Delli-Pizzi, anecdotal evidence suggests that the campaign was very successful in raising community awareness, and acceptance of the promotional materials was high. An analysis of the campaign is planned, but data in terms of reduced pedestrian injuries will not be available until late 2000 (Delli-Pizzi, personal communication, 18/7/00).

The Leichhardt Municipal Council ran a campaign called *Nostri Figli Nostra Responsabilità* (Our Children, Our Responsibility). The promotion was aimed at parents and carers of children under 7 years of age with Italian as their first language. The campaign was inspired by the finding that this group exhibited a lower child restraint usage than the general population. There were also suggestions that the Italian community were more relaxed in relation to road safety behaviours. Italian speakers were the predominant NESB group in the particular local government area, and Italian organisations worked in partnership with the Council. Stage 1 of the campaign involved an activity sheet targeting parents of children taking language classes at schools in the area. Stage 2 included a large media campaign, a competition to win a child harness, and distribution of leaflets. All facets of the campaign were deemed successful in reaching Italian speakers in Leichhardt and throughout the rest of NSW.

The United States has also instituted a variety of activities and promotions. In 1995 “¡El Maneje Seguro!” used a popular form of Mexican bingo to teach Spanish speakers about various road safety issues. The game was played in community settings such as migrant labour camps and schools. Volunteers ask traffic safety questions and players must choose the correct answer. The first to get a row of correct answers wins. The volunteers are often high school students, and they take the road safety messages seriously. The impact of the program is ongoing as the peer pressure from the volunteers continues and affects their friends and parents.

In partnership with specific NESB communities, Los Angeles County developed a child safety seat program to teach members of these groups how to use the seats correctly. It was suggested that the lack of prior communication was due to the quality of the presentation. For example, often brochures in other languages were not equivalent in quality to the English materials (e.g. photocopies compared to colour glossies), or public service announcements were simply voice-overs on top of an English announcement (Nichols, personal communication in Lewis, 1997). Even an

elemental question such as what should be the colour of the brochure is important – Nichols cites the example of the colour red signifying death for Koreans.

The LA child safety seat program studied each culture individually and extensively, then approached community leaders before engaging artists and writers from each community to create the materials (Lewis, 1997). Public service announcements also differed according to the particular community. The most influential family member was targeted for different cultures, so in some it was men and in others it was women. If money was important to a culture, the amount of the fine was emphasised. Radio stations were provided with the announcements in multiple languages.

Another approach is to change the way that NESB individuals see and interact with enforcement and emergency service personnel. For example, the Melbourne Fire and Emergency Services Board has instituted several programs aimed at increasing the fire safety of NESB groups (Landers, 2000). A teacher's education kit has been designed to assist teachers of English as a second language (ESL) to teach English using fire safety themes. In conjunction with the SAFE program (described earlier) general safety information is being disseminated through peer presenters to a range of ethnic communities. Additionally, bilingual fire fighters are encouraged to visit ethnic community functions and centres and present information in their own language.

In 1987 the California Highway Patrol began the 'El Protector' program to improve road safety among the Hispanic population of California. Bilingual patrol officers made culturally appropriate presentations in non-traditional settings such as migrant labour camps, schools and churches. In addition, the Spanish media and promotional tools were used. Two years after the launch of this program, fatalities among the Hispanic community decreased by around a third (Lewis, 1997).

There are also non-behavioural aspects that can be altered to improve road safety for NESB groups. For example, Johnston (1980) evaluated Australian road traffic signs and found that in general symbols are superior to using text. Not only is their legibility distance greater, they are more easily comprehended by migrants and poor readers. According to Johnston, where necessary even abstract symbols are preferred to a symbol plus text.

## **3.2 GENERAL ADVICE**

Mitchell (personal communication, in Lewis, 1997) says that to reach diverse populations it is not sufficient to simply translate safety materials such as posters. People will relate better to the information if they see a face similar to their own. But putting a diverse group of people on the poster will not necessarily reach diverse populations.

The following tips when creating a road safety program for people from non-English speaking backgrounds were suggested by Lewis (1997):

- don't make assumptions based on stereotypes;

- know your target audience by discussing and verifying everything with a trusted member of the community in question;
- learn which cultural and safety issues are important for that culture;
- show people what is in it for them;
- assess the target group's road safety knowledge level;
- establish your trustworthiness in that community (e.g. don't wear law enforcement uniforms if they are intimidating to that community);
- use humour or fun to get the message across;
- use cultural symbols to get the message across;
- keep an open mind, be flexible and creative.

In general, there are a range of issues that need to be considered. For example, visual cues, whether they be words or pictures, are sometimes easier to understand than speech (Walker, 1999). In a similar vein, jargon should be avoided (Smith, 1993). Bone (1991) points out that a translation into a particular language should take account of regional dialect differences, citing the example that a document in French will differ whether it is distributed in Montreal or Paris. Interactive, non-lecture and participatory training has been found to more effective in conveying safety messages to a range of people who may be non-English speaking or illiterate (Smith, 1993).

According to Barbara Minuzzo of Melbourne's Royal Children's Hospital (1999), using peer educators is an ideal and effective method of targeting what might be ordinarily difficult to reach (i.e. non mainstream) audiences with safety messages. She defines peer education as the use of community representatives providing information in their own environment, rather than via people who might be perceived as experts or authority figures. Part of the advantage of local peer educators stems from the fact that since they live in a particular community they know who to best target in terms of interest or social groups or respected figures, and how to alter their approach according to their particular audience.

Availability of methods for information dissemination is also an important consideration. For example, larger NESB communities in Australia, such as the Chinese, may differ from smaller ones like the Somali in that they have been established for a longer period. In the larger communities there are often formalised communications systems in place, such as specific language newspapers, SBS programs, radio shows or whole radio stations.

Language capabilities can be further complicated by cultural and other issues. Smith (1993) relates the American experience where many employees are working illegally, and so are less likely to complain about safety issues. These people are then more likely to be exploited and put into unsafe situations or work for lower pay. While this may not seem relevant to Australia, a lack of knowledge of the system may still stop individuals expressing their views due to fear.

Pride may also discourage individuals from seeking extra help with their language skills or clarification when their understanding is not clear. They may lie about their comprehension of safety messages rather than risk the possibility that an employer will see them as a safety risk and terminate their employment (Smith, 1993). The need to "fit in" may stop an individual from "making waves" by complaining. Inferior language skills may also mean that it is unlikely that an employee is familiar

with their rights and the obligations of their employer in terms of safety and work practices.

There are also issues to be considered when evaluating a potential campaign. While advice should be sought from the relevant ethnic communities during the design of the campaign, if finances and practicality allow it, the finished product should be focus-group tested, again within the relevant ethnic community. However, it should be kept in mind that communication differences may exist between cultures (Smith, 1993). For example, simply asking individuals if they understand the campaign will often not give an accurate appraisal of the situation. Individuals may often say yes, or nod, even when they do not understand, as they are embarrassed to admit a lack of understanding (Smith, 1993; Walker, 1999). It may be better to ask leading questions, or for the individual to be asked to re-explain the information to the interviewer.

Preece (1991) says that translation of printed materials is not overly effective - only the more educated and literate can access them, and such individuals probably have reasonable comprehension of the English materials anyway.

It is worth bearing in mind that compliance with a safety behaviour is not necessarily a natural by-product of a successful awareness-raising campaign. It is possible that a particular campaign is successful in terms of educating the NESB community, but for a variety of reasons the individuals choose not to follow the advice. So rather than simply assessing the compliance of restraint use, for example, it may also be important to determine *why* people are not wearing their seatbelts. This may suggest a new direction for the campaign.

## 4.0 EXAMINATION OF DATA SOURCES

As noted earlier, Police road crash data does not record ethnicity. Three other data sources have been examined in a bid to gain an understanding of road crash injury rates for Victorians of non-English speaking background (NESB). Census data was used to examine the proportion and distribution of NESB throughout Victoria. This data identifies specific local government areas with a high proportion of residents who do not speak English as a preferred language.

A record of injuries due to road accidents is available in two different hospital datasets. The Victorian Emergency Minimum Dataset (VEMD) records hospital presentations, while the Victorian Admitted Episodes Dataset (VAED) codes hospital admissions. The VEMD can be categorised according to preferred language spoken and country of birth, and the VAED codes country of birth.

### 4.1 CENSUS DATA

According to the 1996 Census, Victoria's population comes from 208 countries, speaks 151 languages, and follows more than 100 faiths (Multicultural Affairs Unit, 1999). In excess of 44.5% of Victoria's population were born overseas or have at least one parent who was born overseas, and 17% are from countries where English is not the predominant language. This proportion is the highest of any Australian state or territory. A significant proportion of Melbourne's population were born overseas (29%) and 90% of recent arrivals to Victoria settle in Melbourne.

Overall, 20.12% of Victorian residents speak a language other than English at home (see Appendix 1). Table 1 shows that all of the Local Government Areas (LGAs) with a greater than average percentage of NESB residents are in metropolitan Melbourne. The LGAs with the highest percentage of NESB residents are Brimbank, Whittlesea, Greater Dandenong, Maribyrnong, Moreland and Darebin.

Table 2 presents the data in order of number of residents who speak a language other than English at home. The LGAs with the highest numbers of NESB residents are Brimbank, Greater Dandenong, Moreland, Darebin, Whittlesea and Monash.

Table 3 details the most common non-English languages spoken in the LGAs with a high proportion of individuals of NESB, as identified in Table 1 – as a percentage of each LGA's total population. This data demonstrates that in none of these LGAs does one particular language predominate. In each LGA where the population consists of a relatively large proportion of non-English speakers, there are a range of languages spoken.

**Table 1. Local Government Areas with largest percentage of residents who speak a language other than English at home.**

<b>Local Government Area</b>	<b>Number of residents who speak a language other than English at home</b>	<b>Total Population</b>	<b>Percentage of residents who speak a language other than English</b>
Brimbank	74,678	137,962	54.13
Whittlesea	45,494	93,621	48.59
Greater Dandenong	56,311	117,377	47.97
Maribyrnong	26,088	54,937	47.49
Moreland	54,502	121,545	44.84
Darebin	49,393	114,031	43.32
Manningham	32,356	89,377	36.20
Moonee Valley	32,839	98,406	33.37
Hume	34,913	105,315	33.15
Yarra	19,462	61,746	31.52
Monash	45,278	144,816	31.27
Hobsons Bay	21,120	68,444	30.86
Glen Eira	27,062	106,828	25.33
Kingston	27,127	114,466	23.70
Melbourne	10,848	46,797	23.18
Port Phillip	15,561	70,036	22.22
Whitehorse	27,022	127,387	21.21

**Table 2. Local Government Areas with largest number of residents who speak a language other than English at home.**

<b>Local Government Area</b>	<b>Number of residents who speak a language other than English at home</b>	<b>Total Population</b>	<b>Percentage of residents who speak a language other than English</b>
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Hume	34,913	105,315	33.15
Moonee Valley	32,839	98,406	33.37
Manningham	32,356	89,377	36.20
Kingston	27,127	114,466	23.70
Glen Eira	27,062	106,828	25.33
Whitehorse	27,022	127,387	21.21
Maribyrnong	26,088	54,937	47.49
Casey	25,719	129,217	19.90
Boroondara	24,102	136,796	17.62
Hobsons Bay	21,120	68,444	30.86

**Table 3. Languages other than English most often spoken by residents (as a percentage of overall population) according to Local Government Area.**

Local Government Area	Language	Number of residents who speak that language	Percentage of total residents who speak that language
Whittlesea	Italian	12555	13.4
	Macedonian	10643	11.4
	Greek	7045	7.5
	<b>All non-English<sup>1</sup></b>	<b>45494</b>	<b>48.6</b>
Moreland	Italian	20649	17.0
	Greek	9420	7.8
	<b>All non-English</b>	<b>54502</b>	<b>44.8</b>
Maribyrnong	Vietnamese	7585	13.8
	<b>All non-English</b>	<b>26088</b>	<b>47.5</b>
Greater Dandenong	Vietnamese	9023	7.7
	<b>All non-English</b>	<b>56311</b>	<b>48.0</b>
Brimbank	Maltese	9797	7.1
	Vietnamese	9737	7.1
	<b>All non-English</b>	<b>74678</b>	<b>54.1</b>
Darebin	Italian	16020	14.0
	Greek	11412	10.0
	<b>All non-English</b>	<b>49393</b>	<b>43.3</b>

<sup>1</sup> Includes those who speak another language but the specific language is unknown.

Table 4 is adapted from Multicultural Affairs Unit (1999) and shows the age structure of the Victorian population in percentage terms from the 1996 Census. Unfortunately, a sizeable proportion of the population have not indicated an answer on this item, however a significant percentage of those born in a non-English speaking country (NESC) are aged 20-64 – eligible driving age. It is likely that the proportion of those who speak a language other than English is higher in the younger age groups than indicated as some would have been born in Australia but have a preferred language that is not English.

**Table 4. Age structure (%) of the Victorian Population by Birthplace (adapted from Multicultural Affairs Unit, 1999).**

Birthplace	0-19	20-44	45-64	65+
Australian-born	33.9	38.4	16.8	10.9
Overseas MESC-born <sup>a</sup>	7.8	39.3	33.7	19.3
Overseas NESC-born <sup>b</sup>	9.7	39.6	34.8	15.8
Not stated	32.2	31.6	17.0	19.2
<b>Total</b>	<b>28.0</b>	<b>38.4</b>	<b>21.0</b>	<b>12.6</b>

<sup>a</sup> MESC – Main English Speaking Countries are NZ, UK, USA, Canada & South Africa

<sup>b</sup> NESC – Non English Speaking Country

## 4.2 VICTORIAN EMERGENCY MINIMUM DATASET

The Victorian Emergency Minimum Dataset (VEMD) records hospital presentations at a majority of the hospitals in Victoria. It includes a variety of demographic variables, data related to the reason for the hospital visit, and injury status. The data is recorded by hospital staff completing a standard form.

A subset of this data was obtained for all road-crash related presentations resulting in hospital admission from January 1996 to June 1999, based on preferred language spoken by the client. An analysis of this data revealed a very high proportion of cases where the record indicates “invalid”, “inadequately described”, or “not stated” – essentially “unknown” preferred language. Of the 12 657 crash-related hospital admissions, 9797 individuals (77.4%) indicated that English is their preferred language, 2662 (21%) were coded as unknown preferred language, and there were 198 (1.6%) instances where the preferred language was other than English. The “unknowns” may include other languages. However, a percentage of the unknowns may also represent English speakers where the treating physician did not see it as important to enter “English” as the preferred language, assuming that English would be the default.

A reanalysis of this data by hospital was undertaken to find out if there were particular hospitals more effectively or completely recording language spoken. While the hospitals can not be identified due to confidentiality agreements, only one of the 25 institutions contributing to the database recorded more non-English speakers than unknowns (80 versus 43 cases respectively). However, this set of data on its own is insufficient for a useful analysis.

A reanalysis of the data according to birthplace was equally unsatisfactory in terms of useable data. Such a categorisation would not include a generation born in Australia but still speaking the language of their parent’s birthplace. Also, individuals migrating from some countries may speak English as a preferred language (MESC countries in Table 4).

The VEMD data was also examined by residential postcode (residential LGA is not recorded by the hospitals), and the results are illustrated in Table 5. Only those postcodes matching the LGAs identified in Table 1 as containing a high proportion of non-English speakers are included – Brimbank, Whittlesea, Greater Dandenong, Maribyrnong, Moreland and Darebin. The relevant postcodes were obtained from the councils.

**Table 5. Number of individuals presenting at hospitals for a transport-related injury according to language spoken (English, non-English or unknown), based on Local Government Areas according to postcode.**

Postcodes in the LGA	Number of residents presenting to hospital for a transport-related injury based on language		
	English	Language other than English	Unknown
Brimbank	419	15	59
Whittlesea	1305	55	617
Greater Dandenong	167	5	94
Maribyrnong	254	17	100
Moreland	163	6	93
Darebin	248	17	198

Again the data contains too many “unknowns” to be of any real use. This categorisation is also problematic in that the LGA boundaries do not correspond to postcode boundaries, so there will be cases included in the dataset that are actually outside the particular LGA but within the relevant postcode.

### 4.3 VICTORIAN ADMITTED EPISODES DATASET

The Victorian Admitted Episodes Dataset (VAED) is a collection of data on admissions to Victorian Hospitals, rather than presentations as is the case with the VEMD data. Readmissions within 30 days are excluded. Each record in the database represents an episode of care, and not necessarily one incident. A patient may be transferred between and within hospitals for various episodes of care and may therefore be represented by more than one record. This is estimated to account for 10% of the database overall, but this figure may be somewhat higher for a road accident subset where the likelihood of being transferred for specialised critical care may be greater.

The VAED data were examined for road crash-related admissions for the five-year period from July 1994 to June 1999, comprising 48 715 records. The data was categorised according to country of birth (preferred language is not coded in this dataset). Several different coding approaches was taken with this data, in a similar way to the VEMD data.

Of the 48 715 admissions, 29 834 were born in Australia (61%), 1956 (4%) were born in countries such as England and New Zealand and so may be assumed to come from an English-speaking background, and 12396 cases (26%) form an “unknown” category (as described for the VEMD data). In the remaining 4529 (9%) cases, the admitted individual was born in another country. This number would be further diluted if each country was analysed and a judgement made of the likelihood of English being the most likely language.

The VAED records also indicate the admitted individual’s activity at the time of the crash, for example, whether the individual was a driver, passenger, etc, on the basis of

the individual's country of birth. However, here again in most cases the number of individuals born outside of Australia does not exceed the number of cases categorised as "unknown" in terms of country of birth.

The VAED data does not denote how long the individuals have resided in Australia or their age at entry. It is possible that a proportion of the individuals born in non-English speaking countries may have arrived in Australia at a very young age and been schooled in English since then.

#### **4.4 OTHER POTENTIAL DATA SOURCES**

Several other data sources were examined for their suitability. Crash databases based on Police reports in Victoria, NSW or WA (and possibly in other jurisdictions) do not include an ethnicity variable. A Shire of Bulla survey project and several other Australian Bureau of Statistics-related projects conducted by MUARC were found to provide no way of estimating NESB (e.g. language spoken or country of birth). Hospital data sources in other Australian states equivalent to Victoria's VEMD and VAED were investigated – but did not collect ethnicity information, or had similar problems with unknowns as in Victoria, or the NESB proportion of the state or of the injuries was not sufficiently large for a meaningful analysis. For example, the data for Queensland for transport related injuries in 1999 indicated that 92% spoke English, 7% were unknown, and only 1% (571 cases) spoke other languages (Richard Hockey, personal communication). The proportions are similar for country of birth. The situation is similar in the WA database.

There are a number of potential avenues for collecting data for this project. One approach would be to compare crash data of LGAs similar in almost all respects except for NESB proportion. The profile of crashes (e.g. types, severity, etc) may differ significantly enough to suggest that differences in NESB proportions may be a contributing factor. As noted earlier, however, similar studies conducted in the US that collected data in this way concluded that this would provide findings of limited validity.

In the hospital system, ethnicity information is already collected for road/transport injuries, albeit not very well. It would seem that hospital data (i.e. the VEMD and VAED) is potentially the best data source, if the variables were completed more thoroughly by the treating physicians or attending nurses. If specific hospitals or networks could be encouraged to improve the quality of collection of ethnicity data, it would then simply be a question of the length of time required for sufficient data collection. With many hospital staff already under time pressure due to cutbacks, the methods for such encouragement may not necessarily be straightforward.

A road user survey similar to that conducted by EMD Multicultural Marketing and Management (1996) in Sydney could be undertaken in Melbourne. However, there is no reason to suspect that the results would be vastly different between the two capital cities.

## 5.0 CONCLUSIONS

### 5.1 CONCLUSIONS FROM THE LITERATURE REVIEW

There has been relatively little research investigating the possibility that road users from a non-English speaking background may have a different road crash profile to drivers whose first language is English. Differences between the two populations may arise from a range of sources. NESB groups may not benefit from mass safety promotion messages due to a lack of understanding of the materials. NESB drivers may have been trained in another country with substantially different rules, driving environment or enforcement regimes and not adapt readily to Australian conditions.

Most of the research has examined self-reported attitudes and behaviours. Few studies were found that used actual behaviours or crash statistics. US research seems to focus on differences between Hispanic, Black and White groups, while Australian research generally includes a greater number of other cultures. The most common topic examined in Australian reports is restraint use – particularly the use and knowledge of child restraints.

There is no consistent finding of poorer road user behaviour associated with NESB status. Some investigations have found no difference in road user behaviour or attitudes as a function of ethnicity. Other research has suggested that NESB groups are ‘worse’ than their ESB counterparts, such as Walker’s (1991) finding that three NESB groups were observed to have a lower level of restraint use than a location-matched ESB group. There is also some indication that ESB groups pose a more serious road safety problem than NESB road users; for example EMD (1996) says that ESB drivers are most likely to speed and drink and drive, even though they are the most knowledgeable on the dangers of these activities.

There are further complicating factors in these results. Many of the authors point out that other variables are associated with ethnicity, such as socioeconomic status. Shinar found that when socioeconomic status was separated from ethnicity the latter was no longer a significant factor in seat belt use. Exposure is another important variable. Baker et al. (1998) found that the commonly held belief in the US that vehicle occupant death rates were higher for Whites was in fact not true when the data was analysed by unit of travel or number of trips taken. When reanalysed in either of these ways the data indicates that both Blacks and Hispanics have higher death rates than their White peers. Additional factors indicated in the literature review to impact on the NESB variable include time resident in Australia, language proficiency, clustered versus sparse ethnic communities, and education level of the driver.

It would seem that ethnicity or not speaking English as a primary language is not a straight forward predictor of crash involvement or of risky behaviour. Socioeconomic status may be a better predictor. However, many individuals from non-English speaking background – particularly new arrivals – have the twin disadvantages of both poor English skills and low socioeconomic status.

A number of NESB-specific safety campaigns were also reviewed. While many of these promotions were not evaluated, there is general agreement that care should be taken in designing the materials rather than simply translating English pamphlets. The reasons underlying any observed differences should be investigated, for example it may be a shortage of money that causes a lower level of use of specific child restraints rather than a lack of knowledge or some other factor related to NESB status. During the design stage, the materials should be focus group-tested within the relevant communities to ensure they are appropriate and actually express their intended meaning. Further testing should be conducted prior to the launch of the materials. Unless targeting a specific community, articles should use symbolic or pictographic presentations rather than text to increase their generalisability. Finally, the effectiveness of campaigns should be evaluated to ensure that the message and targeting are efficient and relevant.

## **5.2 CONCLUSIONS FROM THE DATA ANALYSIS**

This project aimed to examine crash involvement of NESB groups in Victoria, particularly Melbourne, rather than self-reported behaviours and attitudes. As crash statistics databases do not include an ethnicity variable, other injury data sources were examined. There are two substantial databases kept by Victoria's hospitals and managed by MUARC – the Victorian Emergency Minimum Dataset (VEMD) registers hospital presentations, and the Victorian Admitted Episodes Dataset (VAED) records admissions.

Both hospital databases indicate the source of the injury, including road transport crash. Both also code ethnicity variables – preferred language and country of birth for the VEMD and VAED respectively. However, in neither case is the recording of either of these variables complete enough for a meaningful analysis.

In the case of the latest three years of VEMD data, 77.4% of crash-related presentations are recorded as having English as their preferred language, 1.6% prefer a language that is not English (consolidated across all non-English languages), and 21% of the cases are “unknown”. Five years of VAED data indicate that 61% of road crash victims were born in Australia, 4% were born in countries where English is obviously the main language (e.g. New Zealand), 26% are recorded as unknown, and 9% were born in another country, and may or may not speak English.

Similar hospital datasets of some other Australian states were also investigated, but found to either not be coded any more completely than Victoria's or the data set of NESB injuries is too small for a useful analysis. Other datasets considered include the National Coronial Information System, various comprehensive and third-party insurance databases, and ABS data. No other sources considered were able to provide useful or complete information to determine the crash involvement of NESB groups.

### 5.3 SUGGESTIONS FOR FUTURE DIRECTIONS

The question of whether there are differences in crash involvement between NESB and ESB populations is yet to be answered. There are several data sources that could provide information to answer this question but they are not completed adequately for each individual involved in a crash, producing a large proportion of 'unknowns'. There are, however, several possibilities for collecting data specific to Victoria on this issue.

The possibility exists to generate a more complete set of VEMD or VAED data. This has the advantage that the system is already in place to produce these statistics. All that remains is to investigate the reasons for the current lack of recording and institute the necessary changes. This might mean concentrating on a particular hospital in a high density NESB location, or a hospital network. It may simply be a case of alerting the hospital staff to the importance of this data. A specific hospital or network could also be approached to collect data on a set of specified variables. In either case the time needed to accumulate sufficient data would be dependent on the number of hospitals participating and the percentage of their clientele who can be classified as NESB.

A less rigorous alternative is to compare the crash statistics between LGAs that have a high and low NESB density. NESB density and makeup for individual LGAs is available through Census data, the last of which was conducted in 1996 (another is due in 2001). A difficulty with this approach is matching the LGAs for variables other than ethnicity.



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## APPENDIX

### APPENDIX 1 – DISTRIBUTION OF NESB RESIDENTS IN VICTORIA

<b>LGA</b>	<b>Number of residents who speak a language other than English at home</b>	<b>Total Population</b>	<b>Percentage of residents who speak a language other than English</b>
Alpine	1,567	17,086	9.17
Ararat	152	10,303	1.48
Ballarat	2,241	70,964	3.16
Banyule	17,158	105,566	16.25
Bass Coast	869	18,873	4.60
Baw Baw	999	30,343	3.29
Bayside	8,778	76,132	11.53
Boroondara	24,102	136,796	17.62
Brimbank	74,678	137,962	54.13
Buloke	71	7,097	1.00
Campase	842	30,748	2.74
Cardinia	1,767	36,977	4.78
Casey	25,719	129,217	19.90
Central Goldfields	227	11,524	1.97
Colac-Otway	398	18,320	2.17
Corangamite	212	15,625	1.36
Darebin	49,393	114,031	43.32
Delatite	796	21,005	3.79
East Gippsland	1,062	35,228	3.01
Frankston	6,897	95,614	7.21
Gannawarra	166	11,051	1.50
Glen Eira	27,062	106,828	25.33
Glenelg	257	18,351	1.40
Golden Plains	396	12,147	3.26
Greater Bendigo	1,597	75,385	2.12
Greater Dandenong	56,311	117,377	47.97
Greater Geelong	17,986	163,262	11.02
Greater Shepparton	4,485	47,765	9.39
Hepburn	531	12,512	4.24
Hindmarsh	96	6,090	1.58
Hobsons Bay	21,120	68,444	30.86
Horsham	341	16,002	2.13
Hume	34,913	105,315	33.15
Indigo	274	12,666	2.16
Kingston	27,127	114,466	23.70
Knox	18,191	120,382	15.11
La Trobe	5,145	62,076	8.29
Loddon	166	8,010	2.07
Macedon Ranges	1,179	29,603	3.98

**Distribution of NESB residents in Victoria (continued)**

<b>LGA</b>	<b>Number of residents who speak a language other than English at home</b>	<b>Total Population</b>	<b>Percentage of residents who speak a language other than English</b>
Manningham	32,356	89,377	36.20
Maribyrnong	26,088	54,937	47.49
Maroondah	7,730	84,384	9.16
Melbourne	10,848	46,797	23.18
Melton	4,124	35,621	11.58
Mildura	3,690	41,794	8.83
Mitchell	948	22,699	4.18
Moira	867	22,921	3.78
Monash	45,278	144,816	31.27
Moonee Valley	32,839	98,406	33.37
Moorabool	757	20,001	3.78
Moreland	54,502	121,545	44.84
Mornington Peninsula	4,616	102,702	4.49
Mount Alexander	325	14,837	2.19
Moyne	93	14,656	0.63
Murrindindi	435	11,526	3.77
Nillumbik	3,994	50,280	7.94
Northern Grampians	120	12,095	0.99
Port Phillip	15,561	70,036	22.22
Pyrenees	98	6,137	1.60
Queenscliffe	133	2,994	4.44
South Gippsland	821	22,337	3.68
Southern Grampians	199	15,979	1.25
Stonnington	16,005	80,489	19.88
Strathbogie	190	8,235	2.31
Surf Coast	491	15,395	3.19
Swan Hill	1,569	18,823	8.34
Towong	133	5,694	2.34
Wangaratta	1,378	23,254	5.93
Warrnambool	524	24,717	2.12
Wellington	1,120	36,772	3.05
West Wimmera	70	4,544	1.54
Whitehorse	27,022	127,387	21.21
Whittlesea	45,494	93,621	48.59
Wodonga	1,346	26,755	5.03
Wyndham	12,404	66,643	18.61
Yarra	19,462	61,746	31.52
Yarra Ranges	7,467	120,692	6.19
Yarriambiack	94	7,744	1.21
Unincorporated Vic.	43	859	5.01
<b>TOTAL</b>	<b>816,505</b>	<b>4,057,390</b>	<b>20.12</b>