Review of the Fire Alarm Subsidy Scheme for Deaf and hard of hearing Victorians

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Table of Contents

Executive summary

This report reviews the Victorian government Auslan Fire Alarm Subsidy, which was launched in 2006 with the aim of delivering 600 smoke alarms to profoundly Deaf Auslan (Australian sign language) users and profoundly deaf spoken language users. Funding for the subsidy came through a one-off grant from the Department of Human Services, while the scheme itself was administered by Vicdeaf. The running of the scheme and this current review process has been overseen by a reference group comprised of representatives from the Department of Human Services, Vicdeaf, the Victorian Council of Deaf People (VCOD), Able Australia (previously the Deafblind Association) and both the Metropolitan Fire Brigade (MFB) and Country Fire Authority (CFA).

The review process sought comment from stakeholders via public forums, an online survey, phone interviews, and meetings with key professionals involved in the day-to-day running of the scheme. Additionally, a number of applicants to the scheme wrote letters and emails to Vicdeaf when they were unable to attend a public forum. A review of smoke alarm technology and effectiveness was also conducted to ensure that any future scheme continues to provide the most appropriate equipment to its applicants for the best price.

The review found that there was strong interest and support for the scheme from the Deaf community. Over 50 Deaf and hard of hearing Victorians participated in the review process and all indicated strong support for the scheme continuing in the future. The scheme has noticeably improved awareness of fire safety among recipients and the Deaf community more generally and in at least one case an alarm from the scheme has acted as a potential life saver in a serious house fire. Alarm recipients reported increased peace of mind and independence alongside greater awareness of fire safety with many noting that they had been worried for years about not having a working smoke alarm but were unable to afford one before the subsidy was introduced. A number of participants called for the scheme to be made permanent as there will always be new Deaf and hard of hearing people entering the Victorian community and it is important all have access to potentially life-saving alarms at an affordable price.

The review found that there is a strong case for continuing the smoke alarm subsidy on an ongoing basis, as there is still unmet demand for alarms within the original target group. The report makes six recommendations which can be summarised as follows:

Recommendation one: The scheme continue
Due to unmet demand the scheme should be continued for at least 3 years and ideally indefinitely.

Recommendation two: Type of alarm
The report shows a strong preference for the scheme supplying applicants with the BoEdin safewake alerter system but cannot make a binding recommendation for this alarm until the system's proposed visual alerter leaves prototype stage. Until such time as the BoEdin system is fully available the report recommends continuing to supply applicants to the scheme with Bellman alarm systems.

Recommendation three: Cost to consumers
The report recommends the $50 consumer co-payment remains, as this fee was felt to be affordable and is comparable to what a hearing person would pay to by a quality smoke alarm for their home.

The report also recommends that a small fund (circa $700 per annum) be establish so that the application fee can be waived in cases of genuine financial hardship. Applicants to this fund would be assessed on a case-by-case basis, but at a minimum would require a low income health care card and letter from a case manager, financial counsellor or similar supporting their application.

Recommendation four: Eligibility criteria
The report strongly recommends that the current eligibility criteria be amended to allow deaf people who sleep in different bedrooms access to more than one alarm per household. The report also found that there is a strong case for extending the scheme to cover those with a severe (as well as profound) hearing loss, as they are highly unlikely to wake to a conventional alarm. As extending the eligibility criteria would have significant cost implications, the report recommends extensions be made in stages prioritised by perceived greatest need. This allows for the option of deferring future extensions to the eligibility criteria if demand in the early stages is higher than anticipated.

Recommendation five: Information distribution
The report recommends Vicdeaf and the MFB and CFA work together to promote fire safety in general and alarm systems for Deaf and hard of hearing Victorians in particular. Vicdeaf, the MFB and the CFA will cover the cost of resource production and distribution so this recommendation has no funding implications for the Department of Human Services.

Recommendation Six: Administrative processes
The report makes a number of recommendations to Vicdeaf about improving efficiency in administration and communication with applicants. It notes the high number of approved applicants who have failed to collect their alarms and recommends that after applicants be given a six month window after their application is approved to pay for their alarm, after which time the alarm will be returned to the pool of available alarms and the person would need to reapply if they still want an alarm.

In order to recover costs incurred administering the scheme, the report recommends Vicdeaf be funded $20 for each alarm distributed.

Chapter 1: Scope of the review

This chapter outlines the purpose and scope of the review, together with the methodology employed to gather data for this report. It begins with a brief history of the scheme and the eligibility criteria which have been employed at different times

Development of the scheme

The Auslan Fire Alarm Subsidy was launched by the Victorian Government in February 2006 to deliver 600 smoke alarms over a two year period for profoundly Deaf Auslan (Australian sign language) users and profoundly deaf spoken language users, which has been continued until further notice.

The scheme arose to mitigate the high cost of visual/ vibrating smoke alarms for people who are Deaf or hard of hearing. Alarms comparable to those distributed in the scheme retail for upwards of $450 and as a result few Deaf or hard of hearing people known to Vicdeaf had purchased them for their own homes. This is obviously a significant risk in cases of fire, particularly for Deaf people who live alone or in all-Deaf households where no one could hear a conventional smoke alarm. The Australian Deaf community has long recognised this risk and the Victorian Council of Deaf People has a long history of lobbying for subsidised smoke alarm system to be put in place. The current scheme was instituted as an ad-hoc measure after the then CEO of Vicdeaf wrote a letter to the premier outlining the issue and proposing that around 600 Victorian Deaf families would benefit greatly from a smoke alarm subsidy. In response the Department of Human Services agreed to fund 600 alarms at the rate of $410 each, or a total cost of $246,000 over the two year life of the scheme.

The scheme has the following goals:

- Increase access to visual / vibrating smoke alarms for profoundly deaf Victorians
- Increase awareness and safety principles in the Deaf community about fire safety
- Ensure a transparent, timely and smooth information distribution about the alarms and the application process
- Monitor numbers of alarms distributed and the demographics of applicants to the scheme with ongoing liaison with the smoke alarm subsidy committee

Vicdeaf has administered the scheme, which has been delivered in partnership with the Victorian Government (particularly the Department of Human Services), Victorian Council of Deaf People (VCOD), Able Australia (previously the Deafblind Association) and both the Metropolitan Fire Brigade (MFB) and Country Fire Authority (CFA). Representatives from each of these organisations also sat on the

reference group that oversaw the development of the scheme. A full list of of the original reference group members can be found in Appendix 1.

The smoke alarm scheme to date has gone through three distinct phases of development, each of which is discussed in turn in the following sections.

Early program development: Feb 2006 – June 2006

Following the launch of the scheme and subsequent media coverage in February 2006, Vicdeaf received many phone calls and emails from people registering their interest in the smoke alarms. It was agreed by the reference group that all applications made up until July 2006 would be deemed as the Pilot Program for the Auslan Fire Alarm Subsidy, eligibility criteria, assessment issues, interest and demand.

After the Pilot Program was completed, the Fire Alarm Subsidy Committee adjusted the criteria to fit the demand from the community.

Stage 1 eligibility criteria July 2006 – April 2007

Under stage one of the scheme, candidates were deemed eligible for an alarm if they were profoundly deaf and met the following additional criteria:

- Use Auslan or another Sign Language as their main method of communication
- Are over 18 years old or living independently
- Are able to provide
    - Two (2) references from a service, deaf club or social group where Auslan is a main form of communication.
      OR
    - One (1) reference from a face-to-face meeting with a member of Vicdeaf, Victorian Council of Deaf people (VCOD) or Able Australia.
      OR
    - Any other information that proves you meet the eligibility criteria.
- Not live in DHS Office of Housing accommodation (Public Housing) or DHS Disability Services accommodation (e.g. Community Residential Unit)
- Not be eligible to receive a smoke alarm or smoke alarm subsidy from any other source of government funding.

There was a limit of one smoke alarm per household.

In developing these eligibility criteria, the reference group explicitly shied away from a medical model of deafness[1] (such as candidates must prove they have a hearing loss of so many decibels), and instead took a cultural view, asking respondents to prove fluency in Auslan – the language of the Australian Deaf

[1] The Australian Deaf community strongly rejects medical models of Deafness because of their connotations of Deafness as something that needs to be 'fixed' and instead identify as a linguistic and cultural minority with their own rich traditions, language and culture.

community. As well as avoiding the medical model on ideological grounds, it was felt that most profoundly Deaf people would find it quicker and easier to prove their eligibility through the criteria outlined above than by being required to produce evidence from a hearing test.[2]

Stage 2 Eligibility Criteria – April 2007 to present

Following complaints from profoundly deaf people who communicate orally, the scheme was extended from April 2007 onwards to include all profoundly deaf people regardless of communication preference. Applicants were now given two options to prove their eligibility - as before they could demonstrate fluency in Auslan or they could provide one written reference from Australian Hearing, hear**service** or private audiologist stating that they have a profound hearing loss that averages 90db+ over 4 requisite frequencies.

To date the smoke alarm scheme has received almost 650 applications, with the bulk of these (475) coming in Stage 2 of the program. Detailed profiles of applicants under each stage are provided in Chapter 3 of this report.

Aims of the review

The current review focuses on gaining information about the following aspects of the Fire Alarm Subsidy Program

1) Outcomes:
- Quantitative data showing the demographics of applicants
- Quantitative data identifying the number and percentage of people who were not eligible for the subsidy and the reasons for this
- Quantitative data showing the number and percentage of people with different communication preferences
- Quantitative data showing the percentage and number of people with healthcare cards and pension cards, in comparison to those who have not paid for or picked up their alarms (to identify the affordability of the program)

2) Achievements:
- Quantitative data on successful applicants, unsuccessful applicants
- Analysis of approved applicants that have yet to pay for/pick up their alarms (as above, is this a question of the expense of $50 payment, the process being cumbersome or about education over the importance of a smoke alarm in the home?)
- Feedback from applicants – how the alarm has improved quality of life, reduced anxiety, etc

[2] Profoundly deaf people who do not wear hearing aids obviously have little need to visit an audiologist and are unlikely to have paperwork to hand proving the extent of their hearing loss.

3) Improved Processes:

- Qualitative data from the service provider and the supplier regarding the ease of service provisions and any issues arising.
- Feedback on how the system can be improved and queries from applicants
- Qualitative data from service users about the ease of the system and any issues facing them.
- Analysis of the appropriateness of declining applicants according to the criteria and recommendations for this.

4) Future Directions

- Recommendations on whether the subsidy should be continued and or adapted.

In addition, the review considered the currency of the equipment provided and the need for fire education and/ or better advertising in conjunction with the program. The review was being funded by the Department of Human Services and as mentioned previously has been overseen by a reference group comprising of representatives from the Department of Human Services, Vicdeaf, VCOD, Able Australian, the MFB and CFA. A full list of group members is provided in Appendix 2.

Review methodology

This review drew on both quantitative and qualitative data from a number of sources. In order to contextualise the program, the review will incorporate a discussion of smoke alarm options available to Deaf and hard of hearing individuals and smoke alarm subsidies available in other states, before analysing consumer and stakeholder feedback on the current Victorian scheme and making recommendation for the future.

The data presented in Chapter 3 of this report comes from application forms and databases associated with the project. It profiles both approved and unsuccessful applicant to the scheme in terms of the following factors:

- Raw numbers
- Communication preference
- Place of residence (urban/ rural etc)
- Health care card status
- Type of house they live in and whether they live in a Deaf household

This information was analysed to gain a better picture of the types of people who had applied to the scheme and identify common reasons why applicants have been rejected or have failed to collect their smoke alarms.

Stakeholder feedback was gained through a combination of an online survey, public forums and phone interviews, letters, and emails from smoke alarm recipients. At the start of this review all applicants to the scheme were sent a letter requesting

that they complete the online survey and/or attend one of two forums. Nine applicants who were unable to attend the forums wrote letters or emails offering their feedback and these have been included in the qualitative data for this review. Additionally, attempts were made to secure individual interviews with applicants representing the three groups of those who had alarms, those who were rejected by the scheme and those who were approved, but have yet to collect their alarms. Unfortunately, none of the people contacted were willing to attend Vicdeaf for an individual interview, however three people – one successful applicant and two who were declined were interviewed over a TTY conversation.

In the end, 55 people completed the online survey – 44 who had applied for smoke alarms and received them, one who had applied but were rejected and ten members of the general public (who found a link to the survey on the Vicdeaf website, or were friends/ family of a recipient) who had not personally applied for an alarm. The focus groups were attended by eight successful applicants, one unsuccessful applicant and the Devices Officer at hear**service** (Vicdeaf's audiology branch). Additionally a meeting was held with three of Vicdeaf's regional case managers to gain their perspectives on how people in country areas (who could not be expected to attend public forums in East Melbourne) had experienced the scheme.

The online survey, public forums and TTY interviews were all based around the same questions; a copy of which is included in Appendix 3. The forums and interviews took a semi-structured approach to data collection and allowed participants to talk about a range of points of interest and relevance to them rather than holding rigidly to the interview schedule. The letters and emails received as part of the review process covered a wide range of topics and points but give a good snapshot of what people saw as the most important issues with the scheme.

Conducting research with Deaf and hard of hearing people presents some unique challenges. Low literacy levels mean many may struggle to complete a written questionnaire, and thus the online questionnaire was specifically designed to be 'deaf friendly' and require only minimal written responses (though space was left for people to write further comments if they wish). As will become evident, many Deaf people use non-standard English in their extended written responses. Rather than try and correct any apparent mistakes, this report reproduces responses exactly as written for several reasons. Firstly it believes that it is important to let people's voices shine through and feels that changing parts of the text takes away part of its expressive quality. Moreover, as Deaf writing often transfers structures from Auslan, reformulating the sentence in standard English may require quite significant rephrasing and in some cases there may be ambiguities in the original that could not be adequately captured in a standard English version. The public forums for the project were conducted in Auslan, raising challenges for data recording. Here the project used a methodology pioneered by Clark (2007) whereby Auslan interpreters voice all comments made in sign language into a microphone connected to a digital recorder. This ensures an accurate record of all comments is available and allows the interviews to be transcribed at a later date and the transcript referred back to gain direct quotes from participants.

Chapter 2: Alarm choice and subsidy options

It is abundantly clear that smoke alarms save lives. Research by the MFB shows that since 1992, 714 lives have been potentially saved in Victorian as a direct result of smoke alarms operating correctly. Additionally, during the same time period, there were a further 1267 fires where damage was minimised because smoke alarms gave the residents early warning that a fire had broken out and allowed it to be promptly contained (MBF n.d.:1). Since February 1st 1999 it has been compulsory for Victorian homes to be fitted with smoke alarms that conform to Australian standards, however there is no requirement that private dwellings have appropriate alarms for Deaf or hard of hearing residents[3], nor indeed an official standard for visual or vibrating alarms (Burkart et al 2005: 33, MFB n.d.:1). The lack of an agreed upon standard in particular means that a key component of this review will be to evaluate research on the effectiveness of various alarm types and combinations to ensure that the most appropriate and effective alarms are provided to the scheme

This section first reviews research on what types of alarms are most effective for alerting Deaf and hard of hearing individuals, before evaluating various models available on the Australian market and recommending an alarm or alarms to be covered under the scheme. In order to place the Victorian Fire Alarm Subsidy in context the chapter concludes with a review of similar schemes in other states and reflection on whether Victoria should adopt any of the innovations seen in other schemes.

Alarm options for Deaf and hard of hearing individuals

Smoke alarms for people who are profoundly Deaf generally use a flashing strobe light and/or a vibrating pager or bed-shaker to alert the Deaf person to the fire. In some cases these alarms also emit an audible alarm signal. Depending on their level of hearing loss, hard of hearing individuals may make use of the same alarm types as Deaf people, or they may use a specialised noise-based alarm – for example one that chimes at a lower frequency than the 3100hz of conventional alarms (Lee 2005) or especially loud alarms that chime at 90dB or greater. The alarm currently supplied under the Smoke alarm subsidy is a Bellman visit system, comprising of flashing light, vibrating alarm and standard audible alarm (3100Hz). There is no official standard for visual/vibrating smoke alarms in Australia, so it is important to review the alarm options available to consider what is the most useful

[3] While there are no explicit requirements that public buildings provide fire alarms for Deaf or hard of hearing occupants, it can be argued that such alarms need to be installed under the Disability Discrimination Act. For more on alarm specifications in Victorian building regulations and internationally see Burkart et al 2005.

and cost effective alarms to provide under the scheme. This section will also explore research on alarms for hard of hearing individuals in order to better understand at what level of hearing loss visual and vibrating alarms become required and at what levels specialised auditory alarms may be equally as effective.

Previous research

Research clearly shows that being asleep is a strong risk factor for fire fatality (e.g. Thomas and Brennan 2007, Brennan 1998). In Victoria, of 66 fatal residential fires between 1997 and 2003 where the time of death was recorded, 70% occurred between the sleeping hours of 8pm-8am (Burkart et al 2005:25). This data does not directly confirm whether the victim was asleep at the time of the fire, however Brennan's (1998) analysis of Australian coronial reports of fire victims found that two thirds of the 150 victims were asleep at the time of the fire, with this proportion rising dramatically for those aged between 5-64. Brennan notes that 86% of people killed in night fires (8pm to 8am) were asleep, and interestingly so were 31% of victims of day fires. These findings underscore the importance of having an alarm system that will effectively wake a sleeper as well as providing an alert to fires during the day time.

Research on the effectiveness of visual, vibrating and auditory alarms has generally compared their effectiveness in waking both Deaf/ hard of hearing sleepers and a control group of adults with normal hearing. This allows for a comparison between the alarm types and also shows whether hearing status affects sensitivity to visual and vibrating alarm systems. Unfortunately, different standards for visual and vibrating alarms around the globe means that it is not always possible to tell if the same types of alarms were used across different studies (Bruck and Thomas 2007). This may account for some variation in results on the effectiveness of different alarm types, though importantly results seem to trend in the same direction and differ more in the degree to which one system is more effective than another rather than in the rank order of effectiveness.

The literature on bed shakers shows them to be an effective device for awakening Deaf, hard of hearing and hearing participants. One of the first studies in this area was conducted by Underwriters Laboratory and found that bed shakers woke 95% of Deaf adults and between 77% and 100% of Deaf children in different age groups after a four minute presentation. Du Bois et al (2005) contrasted the effectiveness of bed shakers for Deaf, hard of hearing and hearing adults and found that bed shakers with a continuous vibration woke 92% of hearing adults, 93% of the profoundly deaf group but only 82% of the hard of hearing. When bed shakers with an intermittent pulse were used they woke 100% of participants in each group. Two studies control for sleep status as well as hearing status: Murphy et al. (1995) and Bruck and Thomas (2007). Murphy et al. (1995) found that of their 16 hearing students who were wearing earplugs, 92% woke to the bed shaker after less than a minute in REM sleep, and 76% in short wave sleep. Of the 11 hard of hearing adults (hearing loss from slight to profound) 87% eventually woke from REM sleep and 70% from short wave sleep, though 19% required more than a minute of alarm

to wake up[4]. Bruck and Thomas (2007) focussed on hard of hearing participants waking from short wave sleep and found that over 80% woke to a pillow shaker vibrating at 'off the shelf' intensity, and that after intensity was increased over two cycles only 3% continued to sleep through the alarm.

While bed shakers have been shown to consistently awaken the majority of participants, the evidence on the effectiveness of strobe lights is much less consistent. Two studies, Nober et al (1990) and Underwriters Laboratory (1991) found strobe lights woke over 90% of deaf adults, but interestingly only 63% of participants with normal hearing in the Nober et al study. However, when sleep stages are controlled for, strobes become progressively less effective. Thus Du Bois (1995) noted a trend for decreased awakenings with strobes from deep sleep (SWS) across deaf, hard of hearing and hearing participants and Bowman, Jamieson and Ogilvi (1995) found that only around 30% of their 13 participants with normal hearing woke from deep sleep when presented with the highest intensity strobe they tested for five minutes. Like Nober, Du Bois also found a trend for strobes to be more effective in waking deaf participants (57% across all sleep stages) than either hard of hearing (34%) or hearing (32%) participants. Bruck and Thomas (2007) provides the most damning evaluation of strobes: no participants in their study were awakened from deep sleep by the strobe at the 'off the shelf' intensity (above US standards) and 43% slept through a presentation at two higher levels still.

The evidence presented so far might give the impression that bed shakers alone are sufficient alarms for deaf and hard of hearing individuals. However, Bruck and Thomas (2007:51) note that among their participants some who had slow responses to the bed shaker (or did not respond at all) woke much faster when the strobe or acoustic signal was presented and vice versa (2007:51). They thus conclude that "this data provides tentative support for the advantage of combining two different types of sensory signals (e.g. a 520 Hz square wave and a tactile signal) for waking people up" (2007:51).

The discussion so far has focussed on the relative effectiveness of strobes as against bed shakers, but how do either of these compare to auditory signals for hard of hearing participants? Du Bois et al contrasted the reaction of participants with an average hearing loss between 20dB-90dB (over 250-8000Hz,) to a standard 3100Hz alarm and a 450Hz alarm presented for less than 2 minutes. While 57% awoke to the standard 3100Hz alarm, the 450Hz alarm was much more effective, waking 92% of participants. Bruck and Thomas provide similar result, albeit focussing on participants with a hearing loss between 25-70dB in both ears. They found 91.7% of participants awoke from a deep sleep to the off the shelf volume (75dB) of the 520 Hz square wave alarm after 30 seconds and none slept through it when raised to 95dB and left for up to three minutes. In contrast, only 56.3% of

[4] Age may have been a factor here, as the hard of hearing individuals were aged up to 76 while the hearing students were all University aged. A review of research conducted by Bruck (2001) showed that children and the elderly are less likely to wake to conventional smoke alarms than adults.

participants woke from a deep sleep to the standard 3100Hz pure tone alarm when presented at 75dB for 30 seconds and 15.6% of participants slept through the three minute presentation at 95dB. This means that the 520Hz square wave alarm actually out-performed both the bed shakers and strobe lights tested in the study as a means waking hard of hearing individuals. Given that these lower frequency alarms are much cheaper than shakers and strobe set-ups, they are clearly a better option for many hard of hearing individuals.

Determining the cut-off point for the subsidy is a difficult task, as no research is available which separates hard of hearing people's responses to different alarm systems by degree of hearing loss. There is thus no research evidence that suggests a safe level of hearing loss at which people can rely on an auditory alarm, and factors such as the set up of the alarm in the home, how heavily the person sleeps, age, and the effects of alcohol and medication may mean that an auditory alarm achieves varied level of success in waking people with the same level of hearing loss on paper (cf Bruck 2001, Bell 2007; see Appendix 4 for a review of different levels of hearing loss and their possible effects).

There is however strong evidence from both Du Bois and Bruck and Thomas that auditory alarms can be effective with people who have up to a 70dB loss. This report thus recommends that the subsidy be extended to those who have a loss of of 70dB or greater across four frequencies in both ears, as they are the ones most likely to benefit from a visual and vibrating alarm system. Additionally, there is a clear need to promote low/ variable frequency alarms to hard of hearing Victorians, and especially those who apply but miss out on the main scheme.

Which alarm system?

There are currently a number of alarm systems available for Deaf and hard of hearing people, and the features of many of the most popular brands are summarised in the attached document from the Queensland fire service.

When the scheme was initially launched in 2006, extensive consultation was undertaken with the MFB and CFA, together with other stakeholders on the best alarm system to offer under the scheme. At the time in Australia there were several products on the market that retailed for around $450-500 and each had their own benefits and problems. Key factors that were taken into account in choosing an alarm for the scheme were:

- Whether it conforms to all relevant Australian Standards
- Whether it was battery operated or hard wired, as battery operated alarms are easier to install.
- Whether it offered a combination of alerting systems (visual, vibrating and potentially audio) to maximise its effectiveness
- General community feedback about the quality and ease of use of different alarm options

The consultation process concluded that the Bellman Visit alerting system (comprising of a battery operated ionisation smoke alarm, portable strobe and vibrating bed shaker) was the best product on the market at the time, as it was the only product that offered all the features outlined above and complied with Australian Standards. Community feedback also suggested people found the Bellman system easier to use and liked the portability of the strobe lamp (which can easily be moved around the house) as opposed to the fixed visual alerters of other systems.

The Bellman Visit alarm system was a good choice at the time, however there are several problems with the system. These can be summarised below:

- Currently only the ionisation smoke alarm is accredited to Australian Standards, when all Australian fire services strongly recommend photo-electric alarms, as they are considerably more effective at detecting smouldering fires in homes
- Strobe light is fragile and very difficult and expensive to repair if broken
- Additional smoke alarms or strobe lights for the system cost upwards of $200
- Poor availability of spare parts/ repair services in Australia

These need not be reasons in and of themselves to stop using the Bellman system, however, the Swedish company Bo Edin are currently redeveloping their Safewake alerter and all indications are that the relaunched Safewake will be a better alerter to offer under the scheme. As the product is still in development its final form is still uncertain, however at present it appears that the Safewake will overcome all of the problems seen with the Bellman system, and will also be significantly cheaper. The Safewake is not a smoke alarm itself, but rather a clock and bed shaker with an internal sensor that responds to the sound of a standard auditory smoke alarm. A companion visual alerter is currently being developed, as is estimated to be commercially available by November 2009. As the manufacturer has invited Vicdeaf to contribute to the design process, we are confident that the eventual alerter will meet the requirements of Australian fire authorities. The anticipated retail price of the relaunched Safewake package is $235 AUD – comprising $170 for the clock and bed shaker and $65 for the visual alerter.

The Australasian Fire and Emergency Services Authorities Council (AFAC) strongly recommends that smoke alarms for people who are Deaf or hard of hearing incorporate both a bed shaker and strobe light. This is because there is a lack of test data to verify the energy or vibration rate to effectively wake all persons. The combination of a vibrating pad and the strobe provides two separate stimuli for the sleeping occupant. AFAC further recommends that alll components of the smoke alarm be designed by the one manufacturer to work in tandem with each other (as opposed to using a bed shaker by manufacturer A and visual alerter by manufacturer B). As such, no recommendation can be made on the suitability of the Bo Edin Safewake until the full package is developed and evaluated. However, at present the Safewake seems like it will be the best alarm to offer because it is more cost-effective than competing alarms and will also work with any smoke alarm anywhere in the house (or on holidays etc). This thus solves the problem of families with large houses being concerned that one Bellman is not enough, and allows

people to install photo-electric alarms (or a mix of both types) rather than being limited to the Bellman ionisation alarm. Bo Edin also offer a comprehensive range of repair services to Australian residents at reasonable prices, and the product is generally agreed to be much more robust than the Bellman system.

Providing it meets with approval from Australian fire authorities, the report recommends the subsidy scheme move to providing applicants with the Bo Edin Safewake system once it becomes available. In the intervening period the report endorses the continued use of the Bellman system, however on advice from the Australasian Fire and Emergency Services Authorities Council (AFAC) the report recommends that the scheme supply applicants with the photoelectric version of the Bellman smoke alarm (BE1280) instead of the ionisation alarm currently supplied (BE1285). While the BE1280 is not currently accredited by Australian Standards, advice is that it may closely comply with future standards. Additionally, applicants should be notified that it is possible to interconnect Bellman alarms with other (standard) smoke alarms in their (so that if one is set off the Bellman alerters will be triggered) and provided with instructions on how to do so.

Alarm subsidies in other states

Currently, Victoria, South Australia, and Queensland are the only states to provide subsidised smoke alarms for Deaf and hard of hearing individuals, though a detailed proposal for a scheme has also been developed for Tasmania. This section gives an overview and comparison of the various schemes in order to identify their advantages and disadvantages and reflect on whether the Victorian model should be changed to incorporate any of the innovations seen in other states.

South Australia

South Australia has the nation's longest running smoke alarm subsidy scheme. Applicants to the scheme receive one alarm, which is fully installed in their home at no cost to the consumer. Additional accessories (such as multiple alerters for large houses) are available at market prices. In order to be eligible for the scheme, applicants must meet the following criteria:

- Be over 18
- Live in South Australia
- Have a ☐Profound degree of hearing loss in at least one ear
- Hold a Health Care Card
- Live in their own home or private rental property
- Not be eligible for other similar schemes

Most of these criteria are similar to those used under the Victorian scheme, with the important addition that the scheme is only open to Health Care Card holders. While this limitation might at first seem reasonable, this report argues that the $450 cost of specialised smoke alarms for Deaf and hard of hearing people puts them beyond the reach of families even with quite substantial incomes. As smoke alarms are

such vital pieces of equipment there is a strong argument for offering them at a reduced rate to all people with a profound hearing loss regardless of income. This also serves as a small offset to the many ancillary costs of hearing loss (measured both in terms of need for specialised equipment and potentially reduced earnings) applicants are likely to pay in other aspects of their lives.

In offering free installation of alarms the South Australian model circumvents one of the major constraints on the Victorian scheme, namely the need to offer an alarm that the average consumer can easily install in their own home without going to further expense. This not only gives the South Australian scheme a wider choice of alarms to use but also guarantees that alarms are (initially at least) set up and in working order in each home that receives one. Despite these advantages, this report argues that free installation would cause costs to blow out unsustainably in Victoria, particularly when considering that 30% of applicants to the current Victorian scheme live outside metropolitan Melbourne (see chapter 3).

Queensland

The Queensland scheme commenced in December 2007, in response to new legislation requiring all Queensland homes to have working smoke alarm. The scheme at first required applicants to purchase an alarm from a pre-approved list and then apply to the fire service for reimbursement up to $400, however it has been recently redesigned so that successful applicants are sent a voucher to purchase their choice of alarm from the pre-approved list. This generally leaves people with an out-of-pocket expense of $50-100 on the actual alarm, plus any fees paid to get the alarm installed (some, but not all, require installation by a licensed electrician).While this system allows greater choice for the purchaser, the scheme is complex to administer, as it requires applicants to enclose a quote for their preferred alarm in their initial application and to show identification when purchasing their alarm, as well as requiring the supplier to check the purchasers eligibility on a central register and invoice the Queensland Fire Service each time a voucher is used. Applicants living in regional and remote areas may also have difficulty accessing approved suppliers of smoke alarms (most of whom are located in metropolitan Brisbane) and this may act as a deterrent to utilising the scheme.

As in South Australia applicants to the scheme are required to be residents of the state and to hold a Health Care Card, however the Queensland scheme also applies to Deaf/ hard of hearing children of Health Care Card holders, whereas schemes in other states are limited to those aged over 18. The hearing loss criteria is also not as exact as in South Australia or Victoria – applicants simple require evidence that they are profoundly deaf or confirmation from GP/ audiologist that their "level of hearing loss may prevent you from hearing a standard smoke alarm at 85dB". Applicants with double storey homes are eligible for two alarm systems to ensure that both sleeping and living areas of the home are covered.

While the choice offered by the Queensland system is commendable, the high out-of-pocket expense people initially required was problematic, particularly as the

scheme is only open to those on a low income. This difficulty appears to have been overcome by the voucher system, however with the trade-off being a complex bureaucratic process that may confuse or deter some applicants and adds substantially to the costs of administering the scheme. Another issue with the Queensland model is its limit to Health Care Card holders, with anecdotal evidence from a supplier of smoke alarms and other products for Deaf and hard of hearing people in Queensland indicating that many people who are not eligible for the scheme find the $450 shelf-price of most alerting systems prohibitive and are not purchasing them. This report would thus argue that Victoria is best off bulk purchasing one type of alarm and offering them to people regardless of income status, but employing stricter cut offs for level of hearing loss to ensure that costly visual and vibrating alarms are not given out to individuals where a low or variable frequency alarm may be just as effective.

Tasmania

Despite years of intense lobbying on behalf of Tasdeaf and various Tasmanian politicians, Tasmania does not currently offer a smoke alarm subsidy scheme. Tasdeaf have however produced a detailed (and costed) outline of the scheme that they would like to introduce and it has been included here for the purpose of comparison.

Under the Tasdeaf model, applicants would make a co-payment of $20 to receive one Bellman system per household. The Bellman system was chosen as it is "portable, easy to install and accredited to Australian standards", while the decision to cap the co-payment to $20 is to bring the cost in line to that of a standard smoke alarm. At the time of writing the eligibility criteria for the scheme were still in development, however it aims to cover those with a profound hearing loss and potentially also those with lower level losses who would struggle to hear a standard smoke alarm.

The Tasdeaf model is not yet up and running, but at this stage looks closer to the Victorian scheme than either of the two models discussed so far. In this sense, it can be seen as a tacit endorsement of much of the Victorian scheme, as an independent organisation (who are not yet at the stage of needing to accommodate to government dictates about how the scheme should run) have chosen a very similar model as a practical way to run their proposed scheme.

In discussing subsidies in other states this section has hoped to provide alternative ideas about how smoke alarm subsidies can run and to question whether the current Victorian model really is the most appropriate for the needs of our community. On balance, the report finds the current Victorian model to be stronger than either the South Australian or Queensland model, however this is not to say that the Victorian system is flawless. Ways of improving the current system will be explored in detail in chapters 4 and 5 of this report, however, the following chapter profiles applicants to the scheme in order to gain a better picture of the needs of our current client base.

Chapter 3: Profiling applicants to the scheme

Between February 2006 and August 2008, 643 people applied for smoke alarms under the scheme, comprising of 168 applicants to the pilot scheme (Stage 1) and 475 in stage 2 of the scheme. Of the 643 applicants, 514 had paid for and received their smoke alarms by the 15th of August 2008, while a further 60 people had been approved under the scheme but were yet to pay for their alarm and 11 were approved but changed their mind . This leaves 58 applicants, or 9% of the total pool, who were declined at either stage of the scheme. It is interesting to note that across the two stages both the rejection and failure to pay rates were higher in stage 1 (11.3% and 11.9% respectively) than in stage 2 (8.2% for both). Lower rejection rates at stage 2 are almost certainly related to the inclusion of oral profoundly deaf people, while the lower non-payment rate is less easy to explain but perhaps a marker of better client follow-up as the scheme matured. Tables 1 and 2 outline the spread of applicants across the two stages:

Table 1: Applicants to the scheme – Stage 1

Offer Accepted	**Paid**		**Grand Total**
	yes	*no*	
Rejected by scheme		19	19
Approved, but changed mind		1	1
Approved	127	21	148
Grand Total	**127**	**41**	**168**

Table 2: Applicants to the scheme – Stage 2

Offer Accepted	**Paid**		**Grand Total**
	yes	*no*	
Rejected by scheme		39	39
Approved, but changed mind		10	10
Approved	387	39	426
Grand Total	**387**	**88**	**475**

Application to the scheme were declined for a number of reasons but the most common (accounting for 45% of cases) was that the applicant was not profoundly deaf. Table 3 lists these reasons in more detail:

Table 3: Declined applicants

Reason for decline	Number of Applicants	% of declined applicants
Not profoundly deaf	26	44.8%
No Auslan (Stage 1 only)	11	19.0%
Public housing tenant	8	13.8%
Housemate already approved	6	10.3%
Incomplete application	4	6.9%
Under 18, living at home	2	3.4%
Not a resident of Victoria	1	1.7%
Grand Total	**58**	**100%**

Of those declined because they do not use Auslan, three later reapplied successfully once the criteria were amended for stage 2. As will emerge in the survey and interview data, many applicants felt that children and people with a severe hearing loss should also be covered by the scheme and expressed concern that one smoke alarm may not be enough for households with multiple deaf residents. While it is clear that it is the responsibility of the Office of Housing to ensure that public housing tenants are supplied with an appropriate smoke alarm, deaf residents may need support to arrange installation. Thus this report recommends that all public housing tenants in future be referred to the Vicdeaf duty worker as a matter of course to ensure that they understand and are supported through the Office of Housing application process

Overall, the small number of ineligible applicants suggests that publicity materials and the application form have clearly spelled out the scope of the scheme and consumers have understood whether they were likely to be successful if they applied. As over 550 applicants were approved by the scheme, and over 500 have now taken delivery of their smoke alarms, it is clear that there was strong demand for the scheme in its current form. While the bulk of applications were made in the first 18 months of the scheme, enquiries have continued right up to September 2008, suggesting that there is still unmet demand for smoke alarms in the Victorian Deaf community. How this demand might change in future will be explored in chapter 5 of this report.

Applications for the scheme were received from people who lived all over Victoria, as outlined in Table 4

Table 4: Place of residents of applicants

Place of residence	Number of applicants	% of applicants
Melbourne	453	70.5%
Geelong	31	4.8%
Regional Victoria	150	23.3%
Interstate	1	0.2%
No address given	8	1.2%
TOTAL	**643**	**100.0%**

Staff at Vicdeaf made a concerted effort to promote the smoke alarm scheme to deaf Victorians living in regional areas and a number of alarm demonstration and workshops were organised in regional areas. This strategy has met with success, with the proportion of applicants from outside of Melbourne very much in line with ABS census data on both the proportion of sign language users who live in regional Victoria and the proportion of the general population (see Willoughby, in press). Within Melbourne, applications were received from a large variety of suburbs, while applications from regional areas came both from large centres with well-established Deaf communities (such as Geelong and Bendigo) and from small towns such as Erica and Birchip. Given that access to deafness services is often poor in regional areas it is pleasing to see that information about the smoke alarm scheme seems to have filtered through to people living in all corners of the state.

Demographic data from stage two

At the conclusion of stage 1, a new application form for the scheme was developed to incorporate the expanded eligibility criteria. The new form also asked a number of additional questions about applicants' preferred method of communication, type of housing, living situation and age, which form the basis of the analysis presented in this section.

While the stage 2 eligibility criteria were expanded to include profoundly deaf people who communicate orally, Auslan remained the preferred language of the majority of applicants to the scheme, as outlined below.

Table 5: Communication preference – Stage 2 applicants

Communication preference	Number of applicants	% of applicants
Auslan only	235	49.5%
Auslan and spoken language	62	13.1%
Spoken language only	172	36.2%
Other signed languages	3	0.6%
not stated	3	0.6%
Total	**475**	**100.0%**

Several factors likely account for the strong preference for Auslan (either exclusively or equally with a spoken language, usually English) shown by applicants

at stage 2. Most importantly, it is much more natural for deaf people to communicate using a sign language than to speak and read lips so it is hardly surprising that applicants prefer to communicate in Auslan (or another sign language) than in English (or another oral language) when given the choice. It is also possible that a number of oral deaf people may not have found out that the eligibility criteria had changed and thus did not apply to the scheme. Finally, as deaf people who communicate orally do not form a strong community like the signing Deaf community, there are not the information networks and informal communication channels for news about the scheme to travel through, further lessening the chances that oral language users who find out about the scheme. These issues notwithstanding, Stage 2 still saw over 170 oral deaf people apply to the scheme, showing that news of the expanded eligibility did filter through to a reasonable number of Victorians.

In order to get a better picture of their accommodation situation, the stage 2 application asked participants what type of housing they lived in, and whether theirs was a deaf of hearing household. Answers to these questions are presented in the tables below.

Table 6: Housing situation – Stage 2 applicants

Type of Housing	Number of applicants	% of applicants
OHS Housing (not approved)	6	1.3%
Owned	322	67.8%
Rental	92	19.4%
Boarding with family/friends	41	8.6%
Private aged care resident	8	1.7%
Other	6	1.3%
TOTAL	**475**	**100.0%**

Table 7: Household type – Stage 2 applicants

Living Situation	Number of applicants	% of applicants
Living alone	165	34.7%
Living in hearing household	178	37.5%
Living in deaf household	104	21.9%
Other	5	1.1%
Not stated	23	4.8%
TOTAL	**475**	**100.0%**

Table 6 shows that over two thirds of applicants own their own home, and over 90% had relatively stable housing as a renter, home owner or aged care resident. Stable housing is important as it means the alarm need only be installed once, and there is less of a chance that the recipient will move and forget to take the alarm with them. However, as the alarms are fully portable and do not require professional installation even those living in temporary housing should be able to

make good use of them and there need to restrict access to the scheme for those living in temporary housing.

Asking whether applicants live in a Deaf or hearing household is potentially a loaded question, as some applicants may worry that they will be denied a smoke alarm if they admit to having hearing housemates, and this may account for the relatively high number of applicants who did not answer this question. The evaluation firmly maintains deaf people should not be expected to rely on hearing housemates to wake them in the case of fire, but it is worth noting that over 50% of applicants either live alone or with other deaf people so did not even have this back-up plan before they received their smoke alarm. Additionally, many of those who live in hearing households (defined as having any hearing family members) are parents of young children who can hardly be relied upon to alert them if the standard smoke alarm went off[5]. It may well be that people who have a hearing housemate to rely on were less likely to apply to the scheme because of decreased concern about being woken in case of fire, but unfortunately there is insufficient data to draw conclusions on this point.

Of the 104 applicants who live in deaf households, only 6 were declined under the limit of one alarm system per household. Were the limit to be adjusted (for example to provide a second alert system to children or flatmates sleeping in other bedrooms), one would expect several dozen additional applications to the scheme[6], but of the 104 deaf households many would consist of couples who can safely continue to share one alarm.

Our demographic analysis concludes with a look at the age profile of applicants to the scheme, with figures presented below. In interpreting this data it should be remembered both that hearing loss often increases with age and that medical advances over the past 40 years have seen a steady decline in the number of children who are born with a profound hearing loss. As a result, the age profile of the Deaf community is older than that of the general population and sees spikes among those born during Rubella epidemics in the 1960 and 1970s (Johnstone 2004).

[5] Not least because research shows children and teenagers are much more likely than adults to sleep through a standard smoke alarm.

[6] Through personal networks Vicdeaf is aware of a number of households with multiple deaf members who did not apply to the scheme as they knew they would be rejected, but who are keen to obtain an alarm if at all possible

Table 8: Age groups – Stage 2 applicants

Age Group	Number of applicants	% of applicants
Under 18	9	1.9%
19-35	91	19.2%
36-45	81	17.1%
46-65	143	30.1%
66+	150	31.6%
Not stated	1	0.2%
TOTAL	**475**	**100.0%**

A cursory glance at the figures given above can be misleading as they age groups are not of equal size. Thus while there were more applicants aged 19-35 than 36-45, dividing the number of applicants by the number of years the age group spans (i.e. 91÷17, 81÷10) shows that 19-35 year olds were in fact less likely than 36-45 year olds to apply for the scheme. This may simply reflect a lower prevalence of deafness in this age group, but could also be indicative of younger people being less concerned about fire safety or seeing obtaining an alarm as less of a priority than more mature members of the community (particularly those with young families)[7].

The number of applicants aged over 65 is disproportionate to the number of people in this age group who are sign language users (c.f. Willoughby in press). However, if cross-tabulating data on age and communication preference shows that applicants aged over 65 are much more likely to communicate orally than those in other age groups of the study:

Table 9: Communication preference by age – Stage 2 applicants

Preferred language	19-35	36-45	46-65	66+	Total
Auslan	54%	63%	54%	35%	49%
Spoken English	24%	16%	29%	60%	36%
Auslan and spoken language	21%	21%	17%	3%	14%
Other sign language	1%	0%	1%	1%	1%
Not stated	0%	0%	1%	1%	0%

Knowing that most older applicants to the program prefer to communicate orally is helpful in designing information packs about the scheme and making decisions about how to publicise the scheme to this section the scheme's target audience.

The final piece of demographic data to be considered in this section is whether applicants have a Health Care Card, with results presented below:

[7] For both Deaf and hearing people, having children often brings about greater awareness of safety around the home and may motivate people to invest in devices such as smoke alarms that they have previously gone without

Table 10: Health Care Card Holders – Stage 2 applicants

Health Care Card	Number of applicants	% of applicants
Yes	280	59%
No	151	32%
Not stated	44	9%
TOTAL	**475**	**100%**

As noted in chapter two, the subsidised smoke alarm schemes in both South Australia and Queensland require applicants to have a Health Care Card. This review strongly argues that this criteria should not be applied in Victoria, as many families who are not eligible for a Health Care Card would still struggle to pay the $450 for a deaf smoke alarm system. Moreover, the figures above show that restricting the scheme to those with a Health Care Card would not bring about large savings as only 32% of applicants would have been disqualified on this condition.

Why did some people never collect their smoke alarms?

As noted at the start of this chapter, 21 people from stage 1 and 40 people from stage 2 were approved for a smoke alarm, but have yet to pay for and collect their alarm. These people are in addition to 11 applicants to the scheme who have explicitly told Vicdeaf that they no longer want an alarm for various reasons.

Unfortunately, changes to the application form means the review does not have consistent demographic data that allows us to compare people who failed to collect their alarms with those who did so at Stage 1. However, comparison at Stage 2 level unearthed a number of clear differences. Perhaps surprisingly, people who failed to collect their alarms were not noticeably more likely to have a Health Care Card than other successful applicants (60% to 58% respectively). However they were much more likely to be aged between 19-35 (35% to 18%) and to be either renting (35% to 17%) or boarding with family or friends (18% to 8%). That many people who have failed to pay are younger and less likely to own their own home might explain their failure to collect their alarm in several ways. Firstly, a number may simply have left their previous address and never received the letter telling them what they need to do to receive their alarm. Additionally they might be symptomatic of many people in this group experiencing financial difficulties which make the $50 fee for the alarm unaffordable. Of course too within the Deaf population there is always the risk that people who have had poor access to education will have difficulty understanding written instructions, so may not realise that they were successful in their application, but need to send a cheque to Vicdeaf in order to receive their alarms.

It was hoped that as part of this review the research team would be able to interview several people who have failed to collect their alarms in order to better understand their situation. However, a characteristic of this group is that they do not respond to letters/emails etc so we were unable to make contact with any of them. Informal conversations with Vicdeaf staff though tell us that many different

factors lead people not to collect their alarms – some have already obtained an alarm through other means, others were hoping it would be a different alarm system and decided they didn't want a Bellman and still others just keep forgetting to make the $50 payment. Given these different profiles there is no one recommendation the report can make that would increase the number of approved applicants who collect their alarms. However, from an administrative perspective the report recommends that if the scheme is extended clients who have not paid should be contacted again 1 month and 4 months after the initial letter is sent, and if no response is received after 6 months their application be withdrawn from the pool. This will hopefully aid as a reminder and allow the administrators of the scheme to have a better idea of how many alarms they have free to give to new applicants at any given time.

Chapter 4: Consumer feedback

This chapter draws on information from the online survey, letters, emails and TTY conversations giving feedback on the scheme and comments from two focus group sessions. The chapter is organised around the questions presented in the online survey (which also served as a model for the focus groups and TTY conversations) and includes both quantitative analysis of survey responses and qualitative analysis of consumer comments. The feedback is divided into the following sections:

- Applying for an alarm
- Installation
- Eligibility and Cost
- Fire safety and peace of mind
- Cases of fire

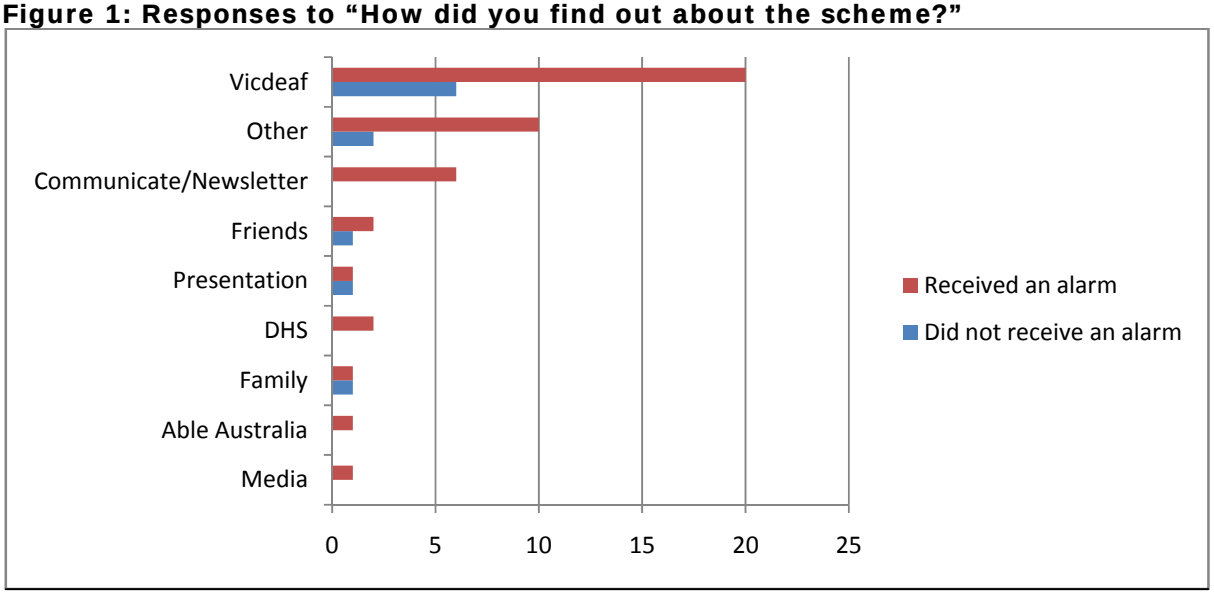
Applying for a smoke alarm

This section of the chapter reviews feedback dealing with people's initial experience of the scheme, including how they first heard about it, what motivated them to apply, and their feedback on the administrative processes of the scheme.

The first question of the survey asked respondents whether they received an alarm through the Auslan smoke alarm subsidy scheme. Here 44 responded that they had and 11 that they had not. The 44 people who received an alarm represent 8.6% of those who have collected their alarm, which Vicdeaf believes is an excellent response rate given the often low literacy levels in the Deaf community and the fact that not all recipients have access to the internet. Of the 11 respondents who did not receive an alarm, five had not heard of the scheme before visiting the Vicdeaf website on the day they filled out the survey, one believed they were ineligible and so had not applied, one was a rejected applicant, and another had bought an alarm before the scheme commenced. Two respondents were hearing people – one the parent of an alarm recipient (here the parents may have received a letter about the review addressed to the son) and the other an employee of a fire safety company, and the final respondent did not explain why they did not apply.

Regardless of whether they had applied, all survey respondents were asked to name where they had first heard about the smoke alarm subsidy. Results are presented below, with red used for people who received alarms from the scheme and blue for those who did not.

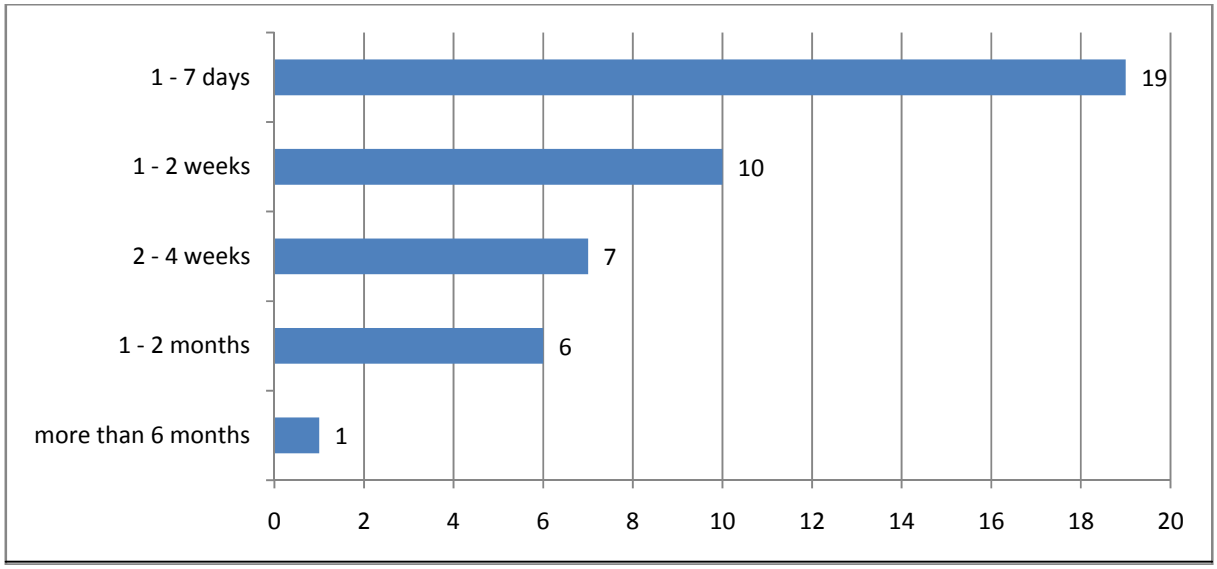
Figure 1: Responses to "How did you find out about the scheme?"



The answers presented in Figure 2 show that Vicdeaf was the principle source of information about the scheme, but that people heard about it from a wide range of sources. Comments from emails and the focus groups indicate that the MFB and CFA were important sources of information about the scheme, and these may have been where many of the 12 people who chose "other" had received their information. While the launch of the scheme was reported in all mainstream media, it is interesting to note that only one participant recalled first hearing about the scheme in this manner. This suggests that targeted information about the scheme has been much more effective in reaching this client group than publicity in the mass media, yet it is also worth noting that this sample may not be representative of the target population. Those who have responded to the survey in the main have received a letter from Vicdeaf and followed instructions to visit the Vicdeaf website to fill out the survey and thus may be more receptive to communication from Deafness and disability groups than members of the general target population.

The survey then went on to ask people how long they waited before applying for an alarm. Figure 2 presents the results, excluding those from people who did not apply.

Figure 2: Responses to "How long did you wait before sending in your application form?"



Of the 44 recipients, 29, or 60%, applied within two weeks and only two waited more than 6 months. Comments show that most members of the Deaf community were highly aware of the need to have a smoke alarm and did not need to weigh up whether spending the $50 copayment would be a good investment. Those who waited gave diverse reasons but the most common were needing to make and attend an audiology appointment to confirm their hearing loss or issues to do with completing the form and remembering to send it. Only one person explicitly remarked that they took time to consider whether they wanted an alarm.

If the scheme is to be extended or expanded, it should be noted that the large number of people applying as soon as they hear about the scheme means the office may be briefly flooded with applications following publicity or eligibility changes. The Vicdeaf administrator in charge of the scheme also noted this as a potential problem area and contingencies need to be in place (for example releasing staff from other duties) to ensure that applications are dealt with in a timely manner and the workload faced by the administrator does not become unmanageable in peak periods. For most of the year the scheme can comfortably be run by a very part-time administrator, but an awareness of the effect of publicity and changes to the scheme can ensure that peak periods are better handled than they were earlier in the scheme.

It is often remarked that Deaf culture is collectivist, and consequently individuals place great value on the opinions and experiences of friends in coming to decisions (cf. Ladd 2003). In simple terms, this means that word of mouth advertising can be a even more powerful tool in the Deaf community than in the general population, and conversely that Deaf people can sometimes be reluctant to try a product if they don't know anyone who has had personal experience of it. As Figures 3 and 4 show however, the majority of applicants did not know someone with a visual/vibrating

smoke alarm before they applied, and of those that did, many said this did not influence their decision.

Figure 3: responses to "Did you know someone with a fire alarm?"

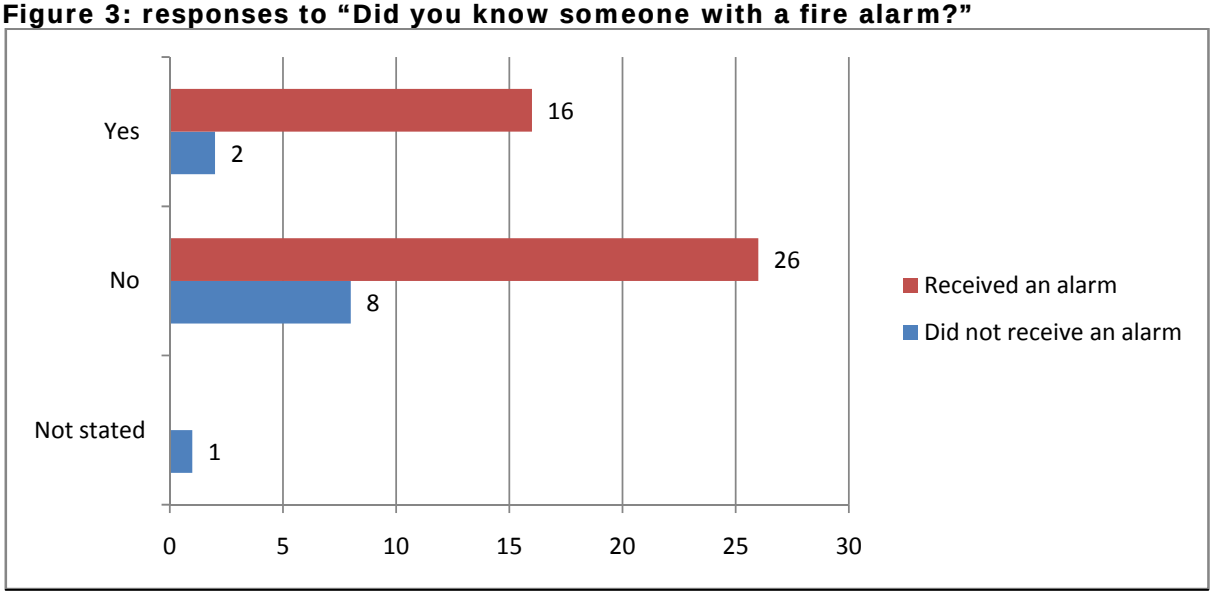
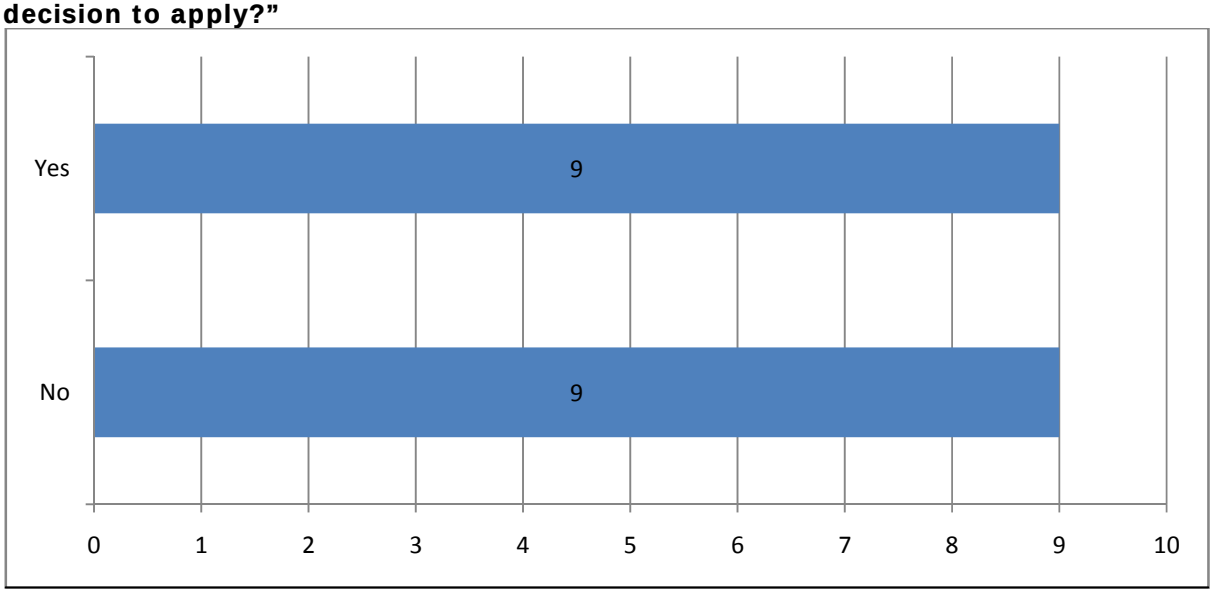


Figure 4: Responses to "Did knowing someone with an alarm influence your decision to apply?"

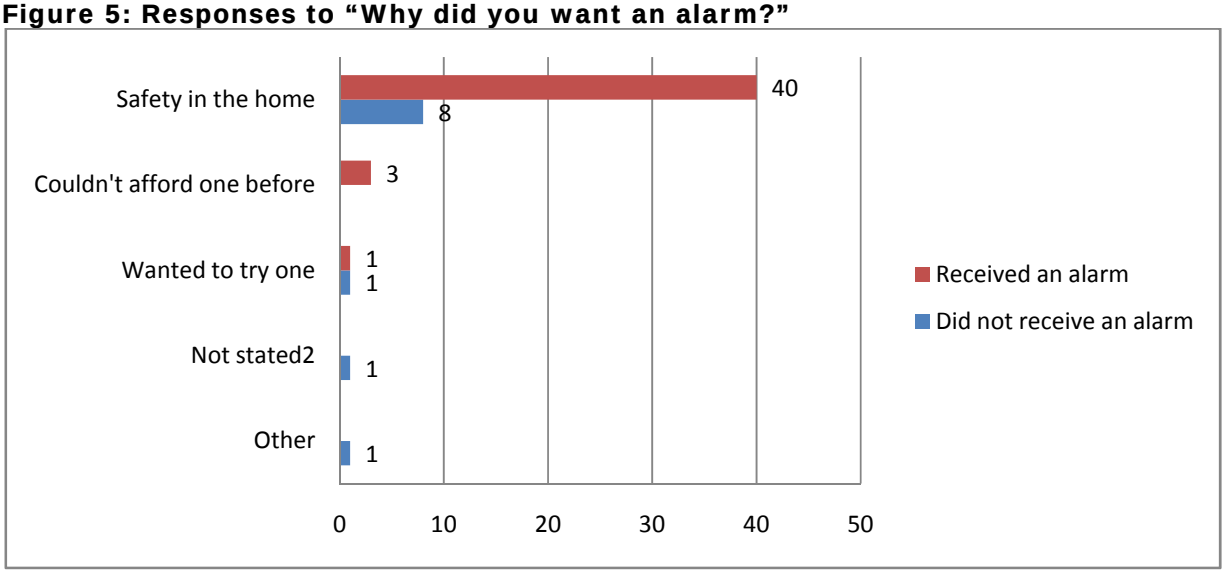


Word of mouth did not influence the majority of applicants, however, the 9 people who said knowing someone with a smoke alarm influenced them shows that it can still play a key role. In some cases this may simply be the persuasive power of personal testimony over other information they had received about fire safety or the subsidy scheme, however in one case from the focus group shows the power of friends in badgering individuals who have been slow to act. Here one respondent

recounted that many Deaf friends had told him about the smoke alarm scheme and kept following him up every time they saw him asking if he'd applied yet. Towards the middle of this year, some friends at a party reminded him that the scheme was closing soon and that was what finally motivated him to fill in and send off his application. The strong interest in the scheme within the Deaf community, and this sort of informal following up between friends was an extremely valuable resource for the scheme and played a large role in raising awareness of both the scheme itself and fire safety more generally within the Deaf community. Unfortunately though there is no similar network to fall back on when promoting the scheme to deaf and hard of hearing people who communicate orally, so any future scheme would need to rely on more traditional and formal networks to reach this client group.

When asked why they wanted a smoke alarm, the overwhelming response on the survey was that people were concerned about safety in the home, as shown below.

Figure 5: Responses to "Why did you want an alarm?"



The responses to this question clearly show that applicants were well aware of the importance of having an appropriate smoke alarm for home safety but had not previously been able to obtain one. Cost was obviously an important factor here, with one recipient commenting in a letter to Vicdeaf

I think the fire alarm subsidy is a great help for hard of hearing people if it was not available they might not purchase one, I for one would not have purchased same if you did not coordinate it.

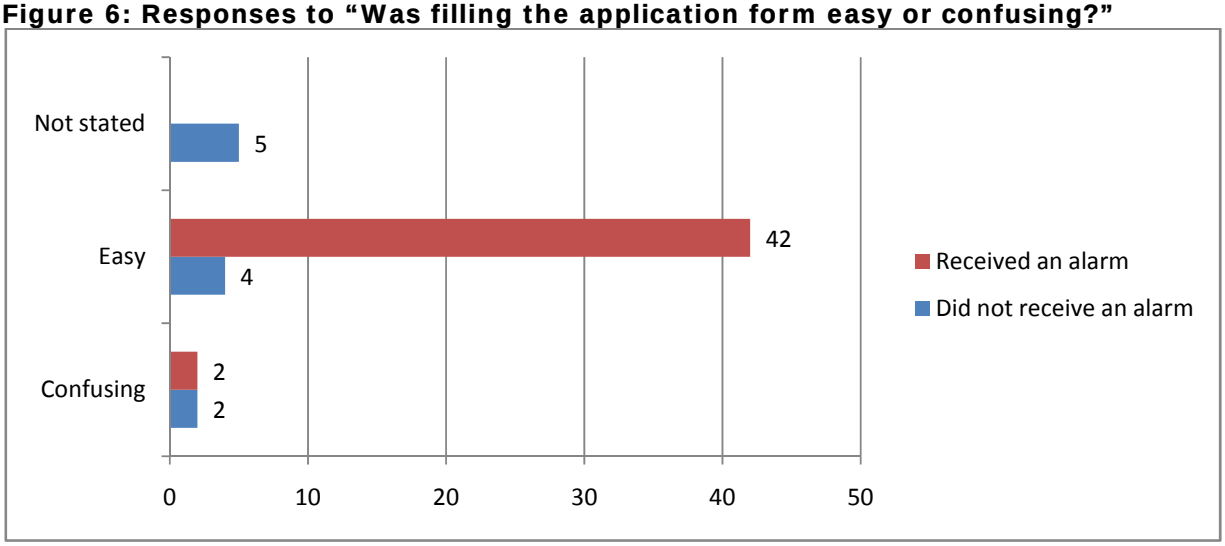
Cost was not the only barrier faced however, with number of respondents commenting that they had never realised these type of alarms existed in the first place. In one case at least, a respondent from one of the focus groups reported that when he and his wife (both Deaf) were building their home about 10 years ago they wanted to install Deaf-specific smoke alarms, but neither their builder nor their local fire brigade knew anything about them. They tried to find out more information through their network of Deaf friends but in the end no one could help

them so they just let it go and put in standard (and for them useless) smoke alarms. While it does not come up in the graph, it should be noted that no participants chose the reason "friend had one" for why they wanted an alarm, showing that for this group friend's testimony might have played a role in motivating them to apply but it was not the reason they wanted an alarm in the first place. A participant from the focus group summed up this attitude when he said

I wasn't happy with the other [smoke alarm] devises that I'd tried and then a friend actually received this one [i.e. a smoke alarm through the scheme] and I thought OK this is great I should give this a go

The final questions to be dealt with in this section asked participants about the application process in and of itself, with only four participants reporting any difficulties completing the paperwork.

Figure 6: Responses to "Was filling the application form easy or confusing?"



At first glance these figures are extremely encouraging, however a look at comments from both the survey and the focus groups show that many applicants needed assistance or clarification to fill out their forms. Three respondents (two with an additional disability) reported that they had asked a family member to fill in the application on their behalf, while another stated that his audiologist had filled out the form and arranged for it to be sent in with an audiogram as part of a standard appointment. The main point of confusion on the form appeared to be how to verify one's degree of hearing loss. The reader will remember that applicants had two options: they could either find two referees from the deaf community to confirm that they were fluent Auslan users or they could produce an audiogram that showed they had a bilateral hearing loss of 90dB or greater across four requisite frequencies. Those who relied on audiological evidence generally reported few problems (though a few were surprised that their hearing loss was/ was not great enough for them to qualify) however in the focus groups a number of people reported that they were unsure which people could be used as referees from the

Deaf community. In both the interviews and in the comments on the online survey, people who were able to drop in on Vicdeaf reported that they were able to get their forms verified by Vicdeaf staff on the spot but others required several phone calls or email exchanges in order to be clear about the types of people who could sign their forms. One participant also expressed some frustration at the need for verification at all, saying *"I'm profoundly deaf, why do I need this paperwork to prove it?"*

Despite some teething problems, this report would argue that the system of referees for Auslan users be continued if the scheme is extended, both because it views Deafness under a cultural model rather than as a medical condition, and because pragmatically people who are profoundly deaf often have no reason to go to an audiologist and it is unreasonable (and a waste of everyone's time) to ask them to attend and pay for a hearing test to prove their hearing loss. There is a clear need however to revise the section of the application form on referees to clarify who is entitled to sign, and perhaps to mention the option of having one's form verified by Vicdeaf staff for those who are happy to visit East Melbourne in person.

Looking at the general process around applying for and receiving the alarm, applicants show a high level of satisfaction. When asked if applying for and receiving the alarm was an easy process only two of the 44 applicants who completed the survey said that it was not.

A separate question on the survey asked people how the process could be improved; here one person commented that it took too long (months) to receive a reply to their application and another felt that the instructions they received for installing their smoke alarm were not clear enough. In the focus group, another person commented that their alarm took a long time to arrive, but this needs to be balanced against 5 people who said that they received it within a few weeks and were very happy with the process. As was discussed earlier in the report, there were times in the scheme where a large volume of applications meant that the scheme's administrator fell behind in processing applications but it seems the majority of people received their alarms soon after they sent in their application. In addition to these timing concerns, the second focus group also noted that when members received the letter informing them that their application was successful, they were unsure exactly how they were supposed to pay for their alarm[8]. Should the scheme continue, all payment information should be checked again for intelligibility however this does not seem to have been a major problem for most applicants. The review also recommends that the administrator attempt to contact all those who have not paid one month after being sent this information to check

[8] The social dynamics of this group were such that when one person made a comment the others were quick to agree, leaving the Vicdeaf review team wondering how much this agreement is coincidental and how much this was people agreeing for the sake of politeness and because they wanted to fit into the collective ethos of the group (see Ladd 2003 for more on this behaviour in Deaf culture). Whatever the cause, it should be noted that this behaviour was not seen in the first focus group, where there were occasionally quite heated debates between participants (particularly around possible changes to the scheme).

that they still want the alarm and remind/explain to them what they need to do to receive their alarm.

Alarm installation and function

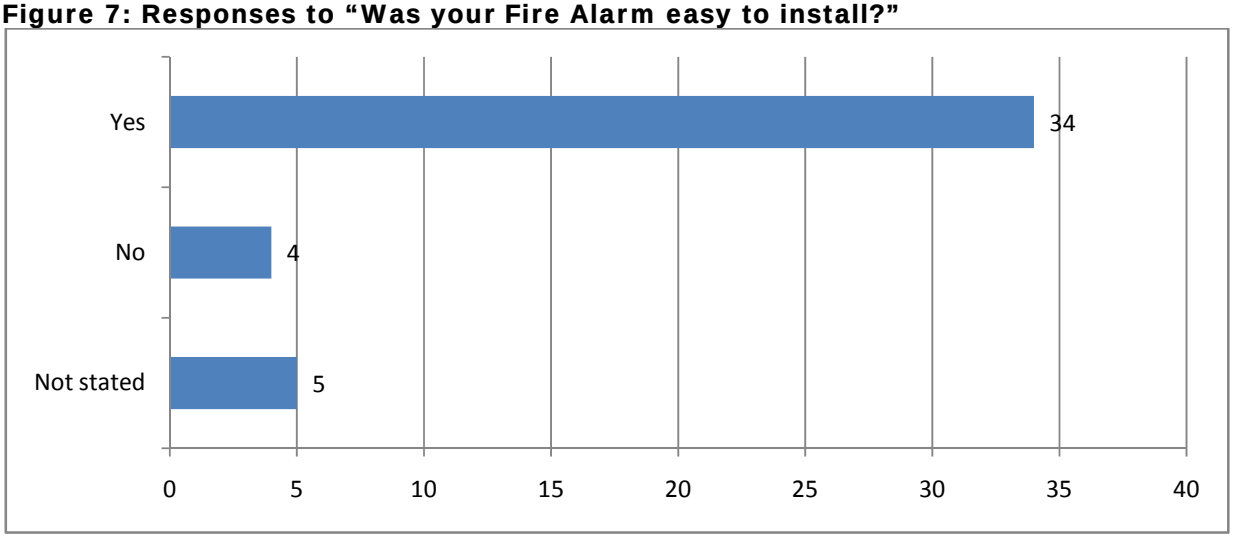
While only four questions on the survey dealt with people's experiences installing and maintaining their alarm, this area is worthy of its own sub-section in the review, as if people's alarms are not working well there is little point in continuing to offer the scheme in its current form.

The vast majority of respondents to the survey found their smoke alarm easy to install, with a typical comment being:

"Was a simple process of removing the normal fire alarm and then screwing in the deaf one...luckily though there were old holes (possibly from previous alarms) so was able to find holes to fit perfectly...as the deaf alarm had a different size bracket thing to the one that was originally there."

The following graph outlines responses to this question on the survey in more detail.

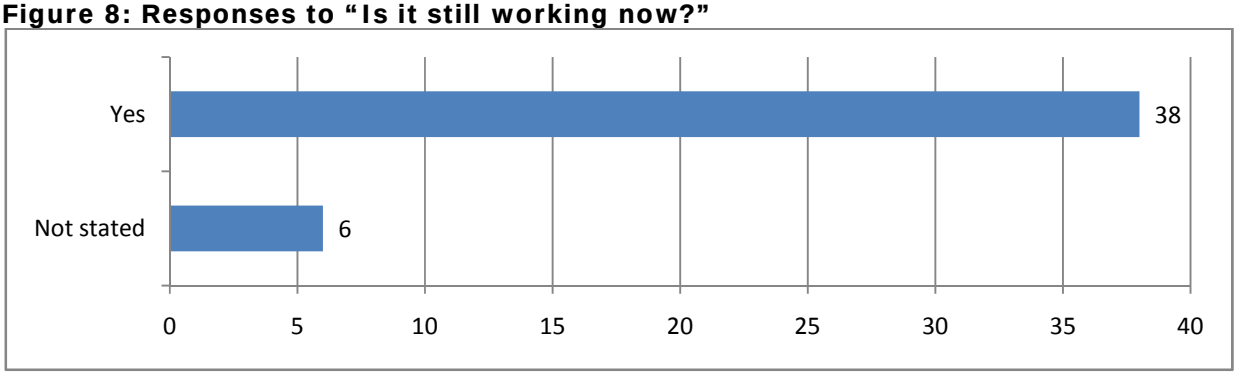
Figure 7: Responses to "Was your Fire Alarm easy to install?"



Those who had difficulty installing their smoke alarms tend to fall into two camps: those who had difficulty following the instructions (3 from the survey and 1 from the focus groups) and those who weren't able to attach it to their ceilings because they lacked a high enough ladder or were worried about drilling holes in the ceiling of a rental property (one each from the survey and focus groups). It should also be noted that four people noted that they had got a friend or handyman to install their alarms for then – of these one complained that they "had to pay for labour!", but no one else seemed to have had problems in this area.

Respondents were also asked if there smoke alarm was still working, with results from the survey presented below:

Figure 8: Responses to "Is it still working now?"



Pleasingly, no one stated that their smoke alarm was not working. The six not stated responses appear to have come from people who only completed the first section of the survey, so it is quite possible that their alarms are also working well. The survey also invited people to leave comments about how well their alarms were working. From the 22 people who have an alarm and left comments it is clear that five are testing their alarms regularly, but also that four alarms have not been tested since being installed. One of the most diligent testers wrote that they *"test it very month as a test for my hearing guide dog as well as my hard wired smoke alarm"* but conversely others commented "*dunno if it really works hehehe never had warning*". Eleven other people left comments that their alarm was working fine, but did not extrapolate, one noted that they had trouble noticing the Bellman's low battery warning and another used an example of a false alarm as evidence that her alarm system was working well.

From the comments, it appears there is still reasonably low awareness in the Deaf community about the importance of testing smoke alarms regularly. Given that the low battery light on the Bellman is quite small and easy to overlook, there is a real need to improve awareness in this area, and the report recommends that if the scheme continues Vicdeaf, the CFA and MFB work together to prepare information (e.g. a booklet or Auslan clip that can be downloaded) reminding former and future smoke alarm recipients of the importance of regular testing.

Although few people commented that they have had difficulty getting their smoke alarm to work well, comments left by several respondents indicate that their (or their friends') alarm had been poorly installed. These include:

Being a leaner in Auslan I managed to converse with a few deaf friends via the Geelong Deaf Group and it seems that some people were comfused as to the posisioning of the smoke alarm and the reasons as to why it keep going off for no reason or beeping . I think I have explaind it ok this end but feel a little note explaining about low batteries and not to fit it over the cooker would help.

Our neigbours run to my house when they thought it's on fire. The alarm is very sensitive to all noises, even slightest noise, things like bacon being cooked in frying pan.

I am very happy with fire alarm but very powerful, even when I cook kitchen suddenly hot steam go to fire alarm every time so from now on I took battery off while I cook and when I finish cook I put battery on I know is bother but I am happy anyway.

Obviously, it is difficult to check whether people have followed instructions about how best to install the alarm, but if the scheme continues it is proposed that Vicdeaf and the MFB and CFA work in closer partnership to ensure that information about fire safety in general and alarm installation in particular filters through the Deaf community.

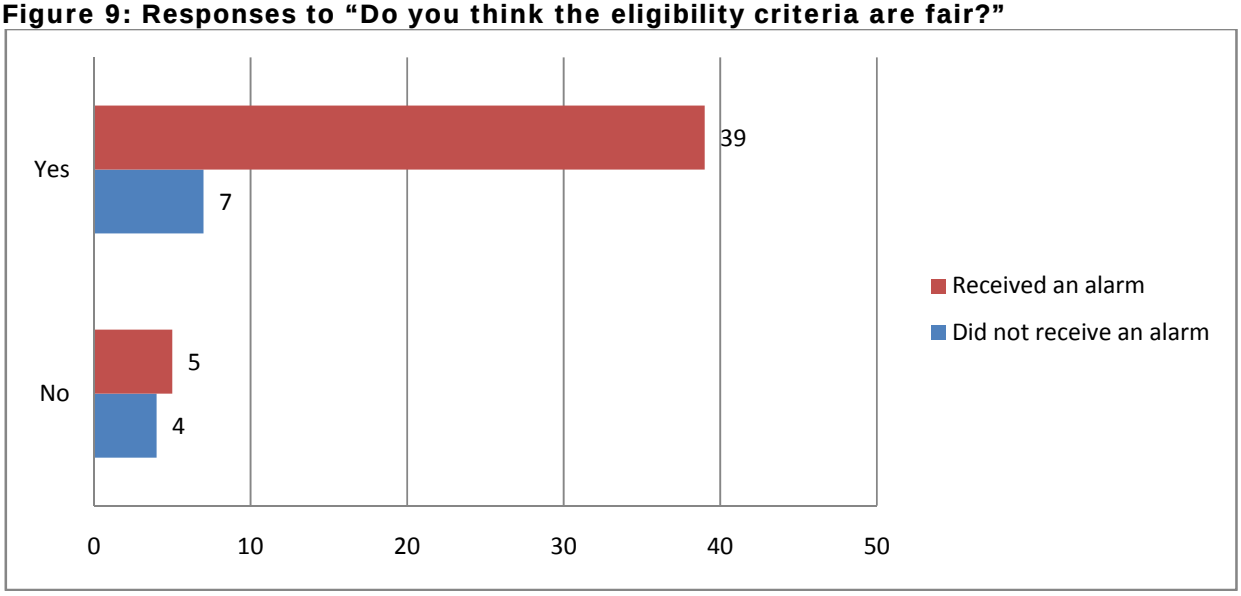
Eligibility criteria and cost

One of the key areas of interest of the review was what consumers thought about the eligibility criteria for the scheme and the $50 co-payment required to receive an alarm. Here there was often quite vigorous debate as to whether a future scheme should broaden its criteria or lower its fees, with respondents showing a keen awareness of the need to balance the rights of people to have a subsidised alarm with the need to spend government money wisely and not allow the cost of the scheme to blow out.

Eligibility

Looking first at eligibility criteria, over 80% of survey respondents said that they thought the current eligibility criteria were fair.

Figure 9: Responses to "Do you think the eligibility criteria are fair?"



Those who felt the eligibility criteria were unfair often left comments about the need to expand the scheme to hard of hearing people or to give multiple alarms to

families with large houses, or many deaf family members. Representative comments in this area include:

Some hard hearing not qualify. They need same deaf.

I really think that every elderly and hard of hearing persons should be entitle to have one with the subsidy. I think that I am very fortunate to have one of these great most useful item.

It would be great if everyone who was profoundly deaf recieved Smoke alarms. I also believe it would benefit people who are hard of hearing to recieve them. As it would prevent accidents, tragities in the home or when travelling (as they are portable).

Deaf people spend a lot of money on technology and have to keep up with it. Government should help us and I guess nothing is free but this is a good start I also think it should be depending on size of house and number of deaf people in house. May not be good enough.

Object to having to buy another one at full cost for other deaf child at end of house.

Particularly in focus group 1 (where one of the attendees had not been eligible for an alarm because his flatmate had already received one) there was strong agreement that deaf people sleeping in different bedrooms should be eligible for a second flasher and bed-shaker, and that $50 would again be an appropriate co-payment to make for this item. Extending the scheme to the hard of hearing proved much more controversial with some typical counter-arguments including:

Obviously the subsidy is a huge concession so the criteria needs to be relatively tough.

It's for those who particularly need one, so is fair

If you didn't have this criteria where would it end and to what expensive for the gorvernment.

When I take aids out at night I hear nothing. With the Bellman system if the alarm activates it vibrates me out of bed. People with mild loss will normally hear the standard Smoke alarm .Human nature being what it is 'If its free grab one' which means they are not going to the people who need them, and subsidy's dont have unlimited funds

The issue of extending the subsidy to children was only taken up by one person – a hearing mother whose application for her teenage son had been refused because he still lives at home. She remarked

The price sounds great.. but I really do think that children should be included as well… a lot of hearing parents don't know a lot about deafness and perhaps they would fail to think about the smoke alarms for their child.. And they would be in danger unnecessarily… so my response is they should be eligible for children regardless of where they live.

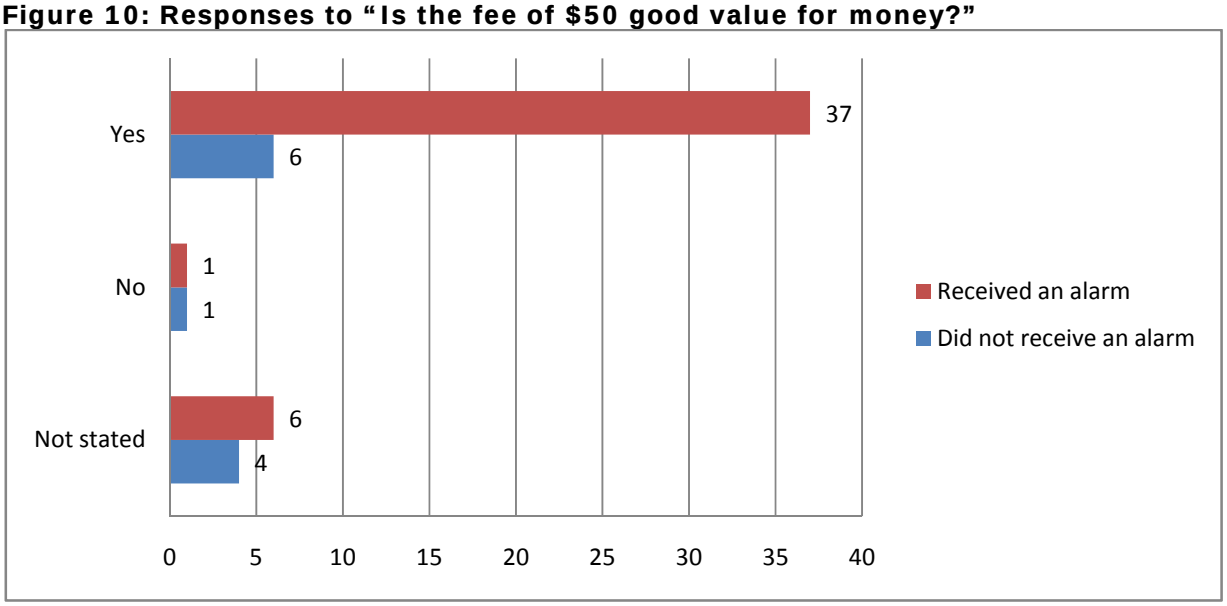
As will be argued later in this report, the review finds that there is a strong case for extending the subsidy to teenagers living at home, but feels that getting alarms to adults living independently in the community should always be the first priority of the scheme. The review sees little point in giving alarms to young children – both

because research shows they often sleep through them (cf. Bruck 2001, Bell 2007) and because they are unlikely to know how to respond to an alarm[9]. Whether children and young teens are Deaf, hard of hearing or hearing, parents are ultimately responsible for their well-being in a fire and should not be relying on them to wake and respond appropriately to an alarm on their own.

A final point worth briefly mentioning in this section is that one woman who emailed Vicdeaf about the need to open the subsidy up to hard of hearing people like herself appeared to believe that she had been rejected from the scheme because her hearing loss was not great enough, whereas in actual fact the issue was that she was an Office of Housing tenant. This case is worthy of mentioning because the woman's confusion meant that she did not ask the Office to provide her with an alarm (as they are obliged to do) and also creates feelings of resentment and inequity that the scheme is being inconsistent in who it rejects. For all these reasons it is important that any future scheme make very clear its reasons when rejecting applicants and offer them basic advice and assistance to obtain alarms through other means as appropriate.

Turning to the cost of the alarm, survey respondents were almost unanimous that the $50 fee represented good value for money.

Figure 10: Responses to "Is the fee of $50 good value for money?"



Of the two people who said it was not good value, one left the following comment:

The fire alarm is very important for everyone to save their lives. but to pay for a fire alarm is very costly for deaf people. They are not cheap ethese days as there are alot of people who are on disaibility pension that could not be afforded.

[9] Sadly a disproportionate number of young children perish in fires because they try to hide from the fire in their wardrobe or under their bed.

This comment was echoed by several other people, with an interesting pattern emerging of people making statements along the lines of "I personally didn't have any trouble paying, but $50 might be a lot of money for some people". Some more concrete evidence of people having difficulty paying was offered in the focus group held for regional case managers, with several raising examples of clients who had taken several months to save the $50 deposit. These stories were however followed by the remark that the case managers did not think the fee was a bad thing and that it was important for clients not to get in the habit of expecting things like this just to be given to them for free. A survey respondent also made the important comment that "*If anybody say's it is not affordable there would be some body or charity that would be able to give them the $50 to purchase this for safety within the home."*

Stemming from the about comment, the report recommends that if the subsidy continues, a small fund be set aside to waive the application fee in cases where people can demonstrate genuine financial hardship. This ensures that no one has to choose between purchasing a smoke alarm or basic staples, but at the same time means that all who can are still asked to make a reasonable contribution towards the cost of their alarm.

Finally it should be noted that respondents were keen to stress that $50 was an appropriate amount to pay, given the product they were receiving. Thus one person noted

Fee cost most affordable when considering full cost of fire alarm

While another remarked

Still much more expensive than a convential fire alarm that can be bought in a hardware store however this has many more features that make it very suitable for deaf people. Extra price is justified and this is subsidised.

One respondent, but only one, noted that he would in fact be happier to make a higher co-contribution to get a greater choice of alarms. He wrote:

I would have preferred to have been requested to pay a somewhat higher subsidy for a trisan type alarm which is wall mounted and can be connected directly to the 240volt smoke alarms installed in the home. This, I believe, provides far greater security to the profoundly deaf.

If the scheme is extended, one of the proposed models to be considered by government is to allow people to choose their own alarm with varying levels of co-payment depending on the model, however it must also be considered whether the extra complexity and loss of bulk purchasing power inherent in this model is worth the benefit of greater choice.

Fire safety and peace of mind

Feedback on the benefits of the alarm was very positive with respondents stressing the benefits, from greater piece of mind and knowledge of fire safety, to cases where the alarm has been a potential life saver. In order to best structure the report this section will focus on the education and peace of mind benefits that have stemmed from the scheme, while a separate section will be devoted to cases of fire.

Peace of mind and greater independence were the most frequently cited benefit of the alarm, with the following comments indicating the real impact the alarms had had on people's lives.

[The smoke alarm] is a great thing for me, as being alone at night. I tried to sleep with both of my hearing aids in but I either break something or the made my ears very sore from laying on the aids, very uncomfortable. With my fire alarm I now sleep without my aids and I am not frighten of fire… I think that I am very fortunate to have one of these great most useful item.

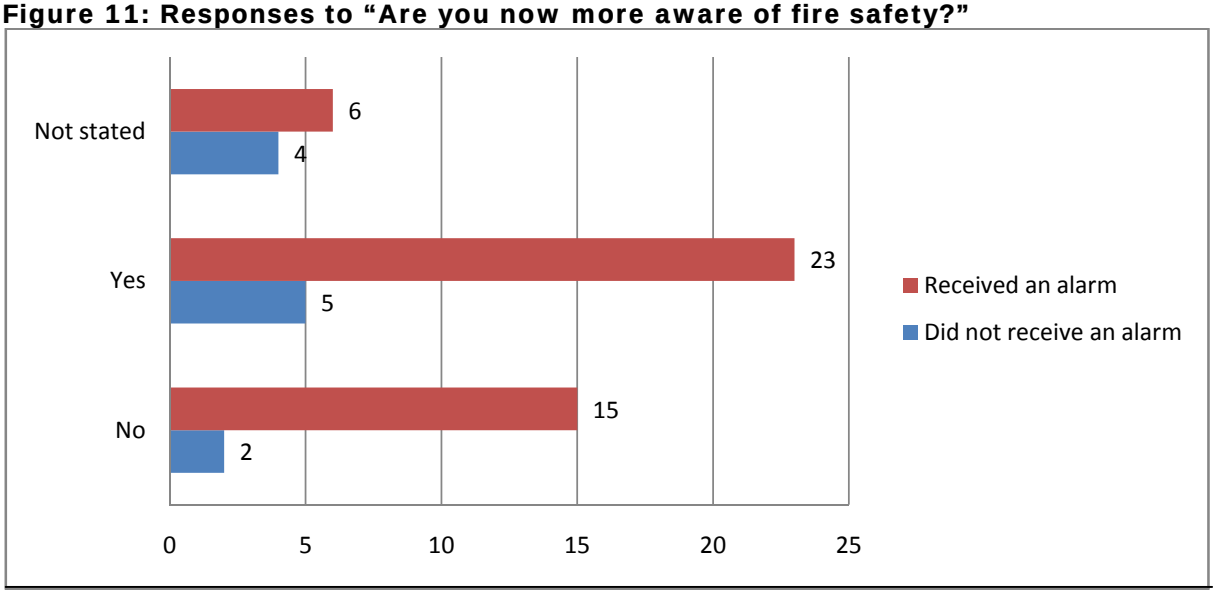
I sleep in a different room to my wife she goes away often and I am by myself sometimes and feel much more at ease with the fire alarm.

I am sure if the fire alarm subsidy be continued it may save a life of two of Deaf people we all know how important a activated smoke alarm is.

I have one of these Alarm Systems and can't speak highly enough of it. It gives me complete security and peace of mind, especially at night when I have to remove my hearing aids; my deafness is complete then and I would hear nothing. But the wobberly disk under my pillow alerts me at once for either the door-bell, or fire alarm, or even the phone.

The scheme also had a noticeable impact on fire safety awareness in the deaf community, with 53% of successful applicants and 45% of those who did not receive an alarm reporting that they are now more aware of fire safety, as outlined in the following figure:

Figure 11: Responses to "Are you now more aware of fire safety?"



Here it should be noted that fire safety education was not an official component of the scheme, but that it has worked to raise these issues in people's consciousness. In Geelong too, Vicdeaf was able to organize a workshop with the local CFA that helped increase awareness in the local Deaf community. Eight respondents to the survey listed things they had learnt about fire safety as part of the scheme, including:

i now know i have to ring 000 on tty if fire happens in home

making me conscious of the need to instal few more alarms in the house as to ensure that everyone is safe, regardless where they might be.

I also attended a fire awareness workshop at Leopold Fire Station (CFA) organised by VicDeaf Geelong, and that taught me about having escape plans, and what to do in case of fire.

the importance of fire safety and having a system in place.

Those who felt they hadn't learnt anything new about fire safety as part of the program often showed a high level of fire awareness already, as shown in the following comments:

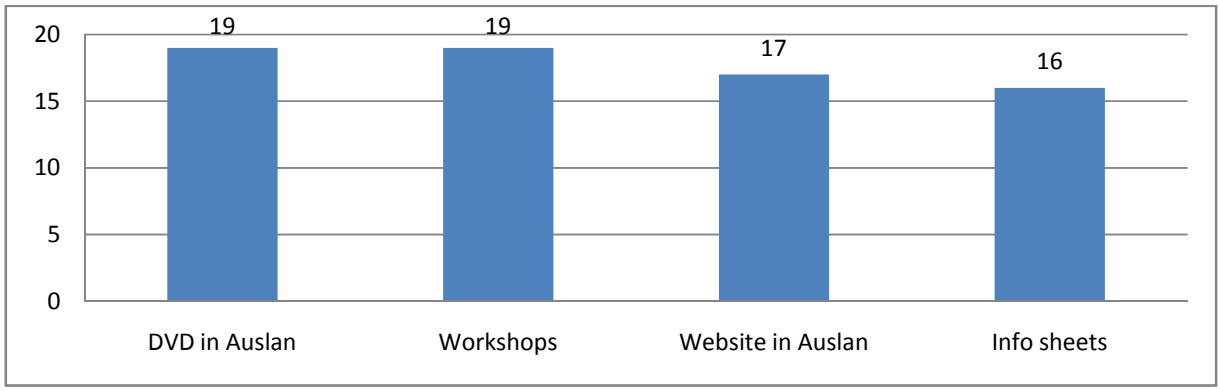
I was already aware of the need for fire safety. I've done fire drills and short fire safety awareness courses at work.

Well, actually I was always aware but this gave me an opportunity to do something about it.

In running the scheme, Vicdeaf has been somewhat surprised by the low level of fire safety awareness in the Victorian Deaf community, and is now committed to raising awareness by working in conjunction with the MFB and CFA community education branches. With this in mind, question 25 of the survey asked respondents

what sorts of resources or workshops Vicdeaf should produce to educate the community. Figure 12 presents the results:

Figure 12: Responses to "Can you suggest ways that Vicdeaf can help to educate Deaf and hard of hearing Victorians about fire safety?"



As many respondents pointed out themselves, there is a strong case for presenting fire safety information in a range of different formats to cater for different communication preferences and learning styles. Respondents also suggested some alternative ways of spreading knowledge such as lectures at senior citizens clubs While some respondents commented that they would particularly like a hands-on demonstration on how to make their home more fire safe, others noted that workshops may be impractical for people to attend and that elderly people may not have the technological resources and know-how to access streaming videos online. Vicdeaf and the MFB and CFA will take these comments on board in developing education resources that are most appropriate for their given target audience and will attempt to offer the same information in a variety of formats whenever practical.

In closing the survey, participants were invited to leave any further comments. Fourteen people availed themselves of this opportunity, with a representative selection reproduced below:

This has been a great thing to happen to deaf people...we can sleep soundly now and know we'd be woken should the unfortunate incident of a fire occur. Also some deafies don't appear to know of this fire alarm subsidy...I know of 2 house fires in the past year with deaf occupants who woke due to the smell of smoke. So if the subsidy returns, need to be wider awareness and maybe additional support for those who can't afford the $50...instalments maybe...

Thank you for allowing us to give feedback If at some stage the criteria for the Fire Alarm changes could you notify those of us who have already applied for one but were unsuccessful. Thanks

I feel any information you can get people to listen to is good and every way avalible should be used if posible. Deaf people are no different to hearing people you can be overcome by smoke alone so a smoke alarm in my opinion should be conpulsory in all homes in Australia.

Publicity is the more popular form of making people aware in my opinion. Nothing like an advertisement on the T.V. to get people interested and concerned for their own safety.

Perhaps information could be distributed to retirement villages and places where members of the aged community (those most likely to require assistance, but not as likely to access it via the net) would be likely to be reached eg medical & rehab centres, as I like many others are not even aware of the equipment & services available.

thanks for your time in doing this project its an excellent idea.

As well as providing helpful ideas, these comments, together with other responses to the survey, show that there has been strong interest in and support for the Smoke alarm Scheme from Deaf and hard of hearing Victorians. Consumers who gave feedback as part of this review are clearly not only grateful for the subsidy but keen to take ownership of it and debate ways that it might be improved. The author was pleasantly surprised by the interest the review process generated among applicants and is grateful to the many people who gave of their time to participate in it and help ensure than any future subsidy continues to meet the needs of Deaf and hard of hearing Victorians.

Cases of fire

Over the two and half years of the scheme, Vicdeaf is aware of one family with a smoke alarm through the scheme who have suffered a significant house fire, and others who have had fires but do not have an alarm. These cases, together with other reports of minor incidences where alarms have gone off form the basis of this section and will show that the scheme is having a real impact improving fire safety in Victoria.

The first case to be discussed involved a night fire where the Deaf couple in the house woke simultaneously but are unsure as to whether their alarm, the dog or something else entirely caused them to wake up. As this fire started in the ceiling space, the alarm did not activate until smoke began wafting down into living space – by which time the MFB estimate that it was already going strongly enough that the couple may have woken to a wave of heat from the fire hitting their bedroom. Given the stress of losing possessions and much of the house in a significant fire, it is understandable that the couple are now somewhat unsure whether their Bellman system woke them. However, it seems reasonable to argue that the visual and vibrating alarm may have played a role in waking them, and that even if something else may have woken them initially seeing the flashing strobe and feeling the vibrating alarm would help them identify that they were dealing with a fire. This could save valuable seconds in working out what (if anything) was wrong and engender greater alertness. In this case the couple were able to leave the house safely and quickly raise the MFB, however the house was too severely damaged for them to continue living in it after the fire.

A number of applicants had applied for an alarm but had not followed through and collected the alarm. Awareness of fire safety and the life saving potential of having

a working smoke alarm and escape plans can be quite low in parts of the Deaf community. For those with a lower awareness of fire risks there is a converse higher need for fully functional smoke alarms and the report reiterates the importance of building a substantial education component into any future versions of the subsidy.

Unfortunately fatal house fires are not uncommon among Deaf and hard of hearing people. As recently as May 2008 an elderly Deaf woman died in a house fire at Black Rock which was believed to be started by smoking in bed. News reports noted that there were no working smoke alarms in the house (ABC, 21/5/08). As the woman's body was found in the kitchen of her two storey home, it seems she was overcome while attempting to flee the fire, and that a visual/ vibrating smoke alarm might have given her valuable extra seconds or minutes to escape the house. A 2004 report commissioned by the Department of Human Services into fire, burn and scald fatalities also notes at least one death of an elderly deaf person in a house fire between 2000-03 but unfortunately provides no further details on the circumstances under which it occurred (Bugeja 2004:21).

Looking beyond the strictly Victorian context, the report notes two cases in Tasmania in the last five years where elderly men have died in fires despite the presence of a standard working smoke alarm (TASCD 2003, Mercury 2007). In both cases it was noted that the victim was hard of hearing and likely would not have heard their smoke alarm go off. The coroner's report from 2003 is particularly noteworthy because the coroner's comments explicitly state that a visual/ vibrating smoke alarm system "may have alerted the deceased sooner to the dangers and possibly have saved his life (TASCD 2003: no page). The coroner's recommendations also call for all accommodation facilities in Tasmania to provide visual/ vibrating smoke alarms for deaf and hard of hearing tenants.

Should the reader be interested in further instances of fire deaths among deaf and hard of hearing people both in Australia and internationally they are referred to Burkart et al (2005:45-6), which provides a catalogue of well-publicised incidences spanning the years 2003-05.

While thankfully few recipients of subsidised alarms under this scheme have experienced house-fires, it is worth closing this section by remarking on cases where people reported being woken by their alarms. Two respondents gave reasonably detailed anecdotes of situations where the alarm had woken them while asleep, which serve to illustrate the Bellman systems effectiveness as an alerting device. In one case, the alarm woke the respondent in around 2am, at which point he naturally got up to investigate, but after thorough inspection could find no sign of fire. After returning to bed the alarm went off again several minute later and this prompted him to check outside as well in case he had missed something, but the incident proved to be a false alarm. In the other case the gentleman involved was having a nap while his wife was cooking and was woken after the alarm was set off by burning food. In this situation it is likely that someone in the house would have noticed the smell of burning food well before it turned into any kind of kitchen fire, but it is still notable that the Bellman system allowed the husband to respond to the

burning food before his wife (who it seems was in another room at the time) and thus prevented the situation from developing. These two short anecdotes, coupled with the reports of people noticing their alarms set off when cooking discussed in the previous section provide first-hand evidence of the alarm's effectiveness as an alerting device in the absence of an official standard for such devices for the deaf and suggest that it is highly likely that recipients will notice and respond to it in a genuine emergency.

Chapter 5: recommendations and demand modelling

The evaluation of the Auslan Smoke alarm subsidy has clearly shown it to be a valuable and much-appreciated scheme that should be continued into the future. There is however significant potential to modify the scheme as it currently runs to make it much more cost-effective and fairer in its eligibility criteria, as well as to improve the administrative processes and support behind the scheme. These modifications and their cost implications will form the basis of this recommendations chapter, with costs implications also outlined in the Executive Summary of this report.

The report makes recommendations in six key areas which will be discussed in turn:

- Continuing the scheme
- Type of alarm
- Cost to consumers
- Eligibility criteria
- Information distribution
- Administrative processes

Recommendation one – Continuing the scheme

Smoke alarms are mandatory for all households in Victoria. Smoke alarms provide early warning of a fire and valuable time needed to escape. Due to the requirement of purchasing a specialised smoke alarm, people who are deaf or hard of hearing have an increased cost in the purchase of a smoke alarm, and the report strongly recommends the continued funding of the scheme.

The evaluation has shown the scheme to be highly successful in its current form and has made an important (and in at least one case potentially life-saving) contribution to fire safety in the Victorian Deaf community. At the end of the initial two year period Vicdeaf still receives several queries each week from people looking to purchase an alarm through the scheme so it is clear that the initial stock of 600 has not completely met community demand. Additionally, there will always be a small number of new Deaf people moving to Victoria and children coming of age who will require alarms even once most community members have taken up the offer of subsidised alarms under the scheme. For these reasons, the review argues that the scheme needs to continue with ongoing funding. If the eligibility criteria remain unchanged it is predicted that demand will be low (as many eligible applicants have already received alarms under the scheme), however the review finds a strong argument in favour of extending the eligibility criteria as outlined below.

Recommendation two – Eligibility criteria

The review has shown that there are strong arguments for extending the scope of the smoke alarm subsidy scheme, for example to children, people with moderate or severe hearing losses or flatmates of smoke alarm recipients. Yet at the same time, there is a real need to restrict the scheme so that costs do not become unmanageable. In seeking the most equitable outcome, the report recommends that the eligibility criteria for the scheme be extended in stages, with the introduction of each new stage being contingent on there still being alarms left over from the previous stage. This allows us to prioritise the distribution of alarms to groups deemed most in need and helps manage expectations if demand is much higher than initially predicted.

The report proposes the eligibility be extended in three stages, as outlined below:
Stage 1: Adjust household limit to one per 'deaf bedroom' (July 2009 – December 2009)
Stage 2: Open scheme to adults with a severe hearing loss in both ears (January 2010 – Dec 2010)
Stage 3: Teenagers (13-18) with a severe or profound loss in both ears (January 2011 onwards)

The following provides a brief overview of the justification of adopting these new eligibility criteria and their cost implications:

Stage 1 – Adjust household limit

During consumer feedback concerns were raised about the limit of one smoke alarm per household in situations where deaf people sleep in different bedrooms. As adults should not have to depend on a flatmate (who may or may not be at home or able to safely reach their flatmates' bedroom) to wake them in case of a fire the report strongly recommends additional alarms be provided to people in this situation.

While only a handful of people living in households where deaf people sleep in different bedrooms applied to the scheme, from informal surveys of the Deaf community Vicdeaf believes that under a low-demand scenario approximately 25 people would apply if the limit was lifted. Under a high demand scenario this figure would rise to 60 people.

Stage 2 - Expand to severely deaf adults (70-90dB loss over four frequencies in both ears)

Chapter two outlined research on the effectiveness of T-3 auditory alarms, strobe lights and bed shakers in waking Deaf, hard of hearing and hearing adults. From this it was concluded that T-3 auditory alarms can be effective at waking sleepers

with a hearing loss up to 70dB, but that those with a severe or profound hearing loss cannot rely on an auditory alarm alone.

The demand implications of extending the scheme to those with a 70-90dB hearing loss may seem unmanageably large if one take as a starting point the Access Economics estimate that 0.4% of the Australian population – or 20,000 Victorians – have a hearing loss greater than 65dB in their better ear (60dB for children). However, this section will argue that demand would be nothing like this figure once a range of factors are taken into account.

Most obviously, the Access Economics data employs a lower threshold for a severe hearing loss than is proposed in this report. As decibels are a logarithmic scale an increase of just 6dB equates to a doubling of sound intensity (Access Economics 2006:12). It is difficult to know how many people under the Access Economic estimate would have a hearing loss of 70dB or more, but Vicdeaf estimates it would be no more than 80%.

On top of these threshold issues, it is worth noting that Access Economics estimate that 75% of people they define as having a severe hearing loss are over 60 and 50% are over 70. People are notoriously slow to act on age-related hearing losses, taking an average of 7-8 years to purchase hearing aids and therefore there would likely be a lag time to also purchase a smoke alarm. They have also depended on a hearing partner / spouse and this is unlikely to change until the partner / spouse's hearing also deteriorates. Thus while the potential audience for a smoke alarm scheme for people with a severe hearing loss might seem great, Vicdeaf's hear**service** audiology clinics estimate they would see only around 10 people per month who would be eligible. Similarly Better Hearing reports that they would see not more than 200 clients a year who would be eligible under an expanded scheme. Additionally calculations for demand need to factor in people who would not be eligible because they are Office of Housing tenants or live in aged-care facilities and the potential to recycle alarms if and when older clients move into such accommodation or pass away.

Finally, it should be remembered that only a small fraction of people eligible for alarms can be expected to apply under the scheme. Under the previous scheme, 177 alarms were distributed to people aged 18-65 who use Auslan as their preferred communication method, whereas the 2006 census records 1,315 sign language users in Victoria aged 20-64. This equates to an application rate of 13.5%, not accounting for the slightly different age ranges of the two groups. While this rate might seem low, it is reasonable to presume that it would be even lower for adult with a severe hearing loss, because unlike those who sigh they are not part of a cohesive Deaf community and thus are less likely find out about the scheme.

From these figures the report estimates that under a low demand scenario, 300 people with a severe or profound hearing loss would apply in 2009, 200 in 2010 and 100 in subsequent years. Under a high demand scenario these figures rise to 450 in 2009, 300 in 2010 and 150 in subsequent years. It should be noted that

elderly recipients will be encouraged to return their alarms if they enter supported accommodation, and that this may see the number of alarms required from 2011 decline depending on return rates.

Stage 3 – Expand to teenagers (13-18)

While young children cannot be expected to know how to respond to a smoke alarm, by age 13 children are capable of responding appropriately in case of an emergency so it is appropriate that they be given access to an alarm. This will also encourage them to develop independence, responsibility and initiative as they can play an active part in their family's emergency plan and would no longer be reliant on family members to wake them in case of fire. It is also important to note that expanding the scheme to teenagers would not result in any increase in the long term cost of the program, as they would be eligible for alarms once they turn 18 in any case.

A rough gauge of the demand implications of extending the subsidy to teenagers can be gained by looking at enrolments at schools with specialist deaf facilities in Victoria. While not all children with a severe or profound loss attend these schools, Deaf Children Australia estimates that the majority do (personal communication), and it is also true that not all students in these facilities have a severe or profound loss. Willoughby (2008) reports that in 2006, 500 students attended Victorian deaf facilities, of whom 60 attended at secondary schools and 148 mixed P-12 schools. Presuming around half the P-12 students are 13 or over, this gives approximately 200 teenagers who would potentially be eligible for the alarm, not of all of whom can be expected to apply.

Recommendation three – Type of alarm provided

As outlined in chapter 2, technological advances since the scheme was launched means that the Bellman Visit system may soon no longer the best alarm to offer under the scheme. Currently the Swedish firm Bo Edin are redeveloping their alarm system, the Safewake, to include a visual alerter and all indications are that once this product is relaunched (tentative date of November 2009) this will be the best alarm to offer through the scheme. The report thus strongly recommends that the scheme look seriously at providing applicants with the Safewake, but will need to wait until the product leaves prototype stage to confirm that it is suitable and conforms to Australian Standards and recommendations of Australian fire authorities.

Should development of the Bo Edin Safewake precede as planned, the advantages of the system over other alarms on the market can be summarised as follows:

- Cost – at an estimated retail price of $230 the Safewake alarm and strobe package is half the price of the Bellman Visit package
- Highly robust (Bellman subject to breakages if light knocked over)

- Works with all conventional smoke alarms so no need for specialised smoke alarm. This also means the BoEdin system can easily be taken on holidays and does not need to be uninstalled if people move house.
- Unlike Bellman, Bo Edin offer timely local repair service at reasonable prices should the alarm break or malfunction.

More information on the features and advantages of different alarm systems on the market is given in chapter two.

If the Bo Edin package is adopted the price per alarm will likely be $230, less any co-contribution made by consumers. The Bo Edin alarm is supplied in Australia by Phoenix hearing services in Queensland and Vicdeaf is confident of our abilities to reliably source this alarm from Phoenix.

Until such time as the Bo Edin Safewake is available and approved by Australian fire authorities, the report endorses the continued use of the Bellman system. The report does however recommend that procedures be put in place to allow applicants to receive $400 off the cost of approved alternative alarms for those who wish to purchase alerting systems produced by other companies. Here a list of approved alarms will be developed in conjunction with the MFB and CFA and interested applicants will need to purchase the alarm themselves and apply to Vicdeaf for reimbursement.

Recommendation four – Cost to consumers

People applying for a smoke alarm under the subsidy scheme currently pay a co-contribution of $50. As the review has shown, most consumers were happy to pay that price themselves given the quality of the product they were receiving, but many raised concerns that it might be unaffordable to low income earners. If the scheme is continued, and now makes use of the BoEdin alarm system the report recommends the $50 co-contribution be retained, but that a fund of approximately $500 per annum be established to allow this fee to be waived for people experiencing severe financial hardship. Applicants seeking to have the fee waived will need to be health care card holder and provide a letter from a case manager or similar outlining their circumstances and endorsing their application.

Recommendation five – Information and communication

Feedback from the smoke alarm subsidy shows that awareness of fire safety and how to correctly install and maintain a smoke alarm is often quite low in the Deaf community. Given that the BoEdin package requires applicants to have a working conventional smoke alarm, it is imperative that any future subsidy using this alerting system be supported by a well resourced education campaign. The report thus recommends that Vicdeaf, the MFB and the CFA work together to produce education resource (such as information in Auslan on DVD) to increase fire safety awareness more generally, and also conduct a number of workshops for Deaf and hard of hearing Victorians addressing these topics.

As the Fire Services are funded to do this sort of work under their community outreach program, including this component in the future subsidy program would not result in any additional costs to the Department of Human Services.

Recommendation 6 – Improving administrative procedure

While consumers were generally happy with the way their application was processed and the time it took to receive their alarm, the review noted that Vicdeaf staff involved in the administration of the scheme felt there was strong scope for improving the administrative procedures. Under the current system, the smoke alarm scheme is one of many ad-hoc projects administered by the PA to the CEO, and thus does not always receive the care and attention it deserves.

If the scheme continues, the report recommends that administration be moved to hear**service** – the audiology arm of the organisation. This would streamline processes for applicants, as many already deal with hear**service** for hearing aid repair and purchasing other alerting devices. Hear**service**'s devices officer is also in a much better position to advise applicants about issues to do with alarm set up or options for those who apply but are ineligible.

Since a large number of people failed to collect their alarms under the original scheme, the report recommends that in future all successful applicants be re-contacted one and four months after they receive their first letter confirming their eligibility for scheme and reminding them to pick up their alarm. If alarms are not collected after six months the applicant will be considered to have forfeited their right to an alarm and it will be returned to the pool of available alarms for distribution.

A final concern to emerge from the report was the lack of support and referral for people who were ineligible for an alarm under the scheme. Feedback from rejected applicants indicates that some Office of Housing residents did not seem to understand that the Office of Housing would provide them with an alarm if they asked, and people with mild or moderate hearing losses were not made aware of the option of obtaining a low/ variable frequency alarm. To address this, the report recommends an information kit be developed for rejected applicants advising them of their options for obtaining an alarm through alternative means, and that hear**service** stock a range of alarms that may be suitable for people with a mild or moderate hearing loss. Additionally it recommends all Office of Housing tenants who are rejected be contacted by the Vicdeaf Duty Worker and offered support to arrange for an appropriate alarm to be installed in their premises.

In order to fund these improved services and to offset costs incurred by Vicdeaf in developing education materials Vicdeaf requests $20 funding be attached to each alarm system distributed.

Bibliography

ABC. (2008). One dead as blaze destroys house. *ABC News* Retrieved 20/10/08, from http://www.abc.net.au/news/stories/2008/05/21/2250815.htm

Ball, M. (2007). *Cognitive processing during sleep: The role of signal significance and participant characteristics.* Unpublished thesis, School of Psychology, Victoria University.

Bowman SK, Jamieson, D., & Ogilvie, R. (1995). Waking effectiveness of visual alerting signals. *Journal of Rehabilitation Research & Development, 32*(1), 43-62.

Brennan, P. (1998). *Victims and survivors in fatal residential building fires.* Paper presented at the Human Behaviour in Fire- Proceedings of the First International Symposium, Fire SERT Centre, University of Ulster.

Bruck, D. (2001). The who, what, where and why of waking to alarms: a review. *Fire Safety Journal, 36*, 623-639.

Bruck, D., & Thomas, I. (2007). *Waking effectiveness of alarms (auditory, visual and tactile) for adults who are hard of hearing*. Quincy, MA: Fire Protection Research Foundation.

Bugeja, L. (2004). *Fire, contact burn and scald injury fatalities among children (0-9 years) and seniors (70+ years) in Victoria, 2000-2003*. Melbourne: State Coroner's Office, Victoria.

Burkart, H. A., Carpenter, L. J., Keenan, N. A., & Nogarotto, V. F. (2005). *Evaluating the regulation of alerting systems to facilitate the evacuation of the deaf in Australia*. Worcester, MA; Melbourne: Worcester Politechnic Institute and the Victorian Deaf Society.

Deafness Forum of Australia (2002) Submission to Standing Committee on Ageing Inquiry. Retrieved 1/11/08 from http://www.aph.gov.au/house/committee/ageing/strategies/subs/sub66.pdf

Du Bois J, Ashley, E., Klassen, M., & Roby, R. (2005). *Waking effectiveness of audible, visual and vibratory emergency alarms on people of all hearing abilities.* Paper presented at the Accessible Emergency Notification and Communication State of the Science Conference, Gallaudet University, Washington D.C. Nov 2-3, 2005.

Ladd, P. (2003). Understanding deaf culture: In search of deafhood.

Lee, A. (2005). *The audibility of smoke alarms in residential homes.* Washington D.C.: US Consumer Product Safety Commission.

MFB. (no date). *Smoke alarms for hearing impaired and Deaf/blind people.* Factsheet No. 22 (10/98). Melbourne: Metropolitan Fire Brigade.

Murcury (2007). Man, 93, dies despite smoke alarm warning. *The Hobart Mercury*. 19/10/2007, page 6.

Murphy, T., Alloway, C., LaMarche, C., Bernstein, D., Ogilvie, R., MacLean, A., et al. (1995). How reliably does a vibro-tactile smoke alarm awaken individuals with hearing loss? *Sleep Research, 24A*.

Nober, E., Wel, l. A., & Moss, S. (1990). Does light work as well as sound? Smoke alarms for the hearing impaired. *Fire Journal, Jan/Feb*, 26-30.

TASCD (2004). Record of Investigation into Death -- Stanley Herbert Mervyn Smith [2004] TASCD 325 (Coroner Ian Matterson, 10 June 2004). Retrieved 1/11/08 from http://www.magistratescourt.tas.gov.au/decisions/coronial_findings/s/325_of_2004

Underwriters Laboratories (1991) Report of research on emergency signaling devices for use by the hearing impaired (Subject 1971), Underwriters Laboratories, Northbrook,IL.

Appendix 1: Members of the original fire alarm subsidy scheme committee

Rina Sherry - Manager Assistive Technology, Community and Individual Support Disability Services Division, Department of Human Services

Gina Bertsch – Manager, Rehabilitation and Information, Vicdeaf

Kris Chapman – Manager, Client Services, VIcdeaf

John Paton – CEO, Vicdeaf,

Melissa Lowrie – Personal Assistant to the CEO, Vicdeaf

Rachel Miers – Manager, Victorian Council of Deaf People

Carla Anderson – Manager Client Services, Able Australia

Appendix 2: Members of the review committee

Rina Sherry - Manager Assistive Technology, Community and Individual Support Disability Services Division, Department of Human Services

Jennifer Balmer - Senior Project Officer, Aids & Equipment Program Community & Individual Support. Department of Human Services

Gina Bertsch – Manager, Rehabilitation and Information, Vicdeaf

Melissa Lowrie – Personal Assistant to the CEO, Vicdeaf

Louisa Willoughby – Lead researcher, Vicdeaf

Julie Harris – Community Aging Strategist Metropolitan Fire and Emergency Services Board

Penny Wolf - Community Development Coordinator, Country Fire Authority

Rachel Miers – Manager, Victorian Council of Deaf People

Carla Anderson – Manager Client Services, Able Australia

Appendix 3: The online survey

The following is a transcript of the online survey, which was available on the Vicdeaf website from the 18th of August until the 16th of September. Where an answer is provided after the questions, respondents were asked to select one option (multiple sections were also possible for question 25). Otherwise a small text box was provided for respondents to write comments, though not all people chose to do so.

1. Did you receive a fire alarm from the Auslan Fire Alarm Subsidy program?
   - Yes
   - No

2. If you didn't receive a fire alarm, please tell us why not?

3. How did you find out about the Fire Alarm Subsidy for Deaf/deaf people in Victoria? (Please select one)
   - Media
   - Able Australia
   - Family
   - DHS
   - Presentation
   - Communicate/Newsletter
   - Other
   - Vicdeaf

4. How long did you wait to send in your application form?
   - 1 - 7 days
   - 1 - 2 weeks
   - 2 - 4 weeks
   - 1 - 2 months
   - more than 6 months

5. Can you tell us the reason why you waited this long?

6. Why did you want a fire alarm?
   - Safety in the home
   - Couldn't afford one before
   - Wanted to try one
   - Other

7. Did you know someone with a Fire Alarm from the subsidy?
   - Yes - someone had a fire alarm
   - No - I don't know anyone with a fire alarm

8. If yes, did this influence your decision to apply for a fire alarm?
   - Yes
   - No

9. Was applying for and receiving the fire alarm a smooth and easy process?
   - Yes
   - No

10. Did you have any problems? How can we improve the process?

11. Was filling in the application forms easy or confusing?
    Easy
    Confusing

12. Comments:

13. Do you think that the eligibility criteria is fair?
    Yes
    No

14. Please give suggestions about why you think it is fair, or why it should be changed.

15. Was your Fire Alarm easy to install?
    Yes
    No

16. Comments:

17. Is it still working now?
    Yes
    No

18. How well is your fire alarm working/not working?

19. Is the fee of $50 good value for money?
    Yes
    No

20. Is the fee affordable or reasonable?
    Affordable
    Reasonable
    Too expensive

21. Comments about cost of fire alarm:

22. What are the benefits from the fire alarm and has it been useful?

23. Are you now more aware of fire safety?
    Yes
    No

24. If yes, what new information have you learnt?

25. Can you suggest ways that Vicdeaf can help to educate Deaf and hard of hearing Victorians about fire safety?
    DVD in Auslan
    Workshops
    Website in Auslan
    Info sheets

26. Any other comments:

Appendix 4: Table reproduced from Deafness Forum of Australia (2002) showing different categories of hearing impairment and their possible effects

Degree of Hearing Loss	Equivalent Decibel loss	Effects	Possible Hearing Augmentation Solutions
Normal Hearing	0 – 20 dB	No effects in good Listening environment	Good acoustical environment and amplification system
Mild Hearing Loss	25 – 30dB	Understanding speech can be difficult Has difficulty understanding in a noisy environment	Good acoustic environment And amplification system
Mild to moderate Hearing Loss	40 – 60dB	Has trouble hearing and understanding in Ideal conditions Unable to follow what is said in large open areas Hearing aids can assist	Good acoustical environment with amplification system an Induction loop or other assistive listening system ie. Infra red or radio frequency system
Moderate to severe Hearing loss	56 – 70dB	Communicates with Significant difficulty under all conditions Need visual clues. Hearing aids can assist but may still have poor clarity of speech	Good acoustical environment with amplification system and induction loop or other assistive listening systems ie. infra red or radio frequency system Clear speech or supplementary sign language assists
Severe Hearing Loss	71 – 90dB	Unable to hearing normal speech, depends on visual Clues (speechreading or sign language) Hearing aids assist with some speech sounds and identifying environmental sounds	Good acoustical environment with amplification and induction loop, or other assistive listening systems ie. infra red or radio frequency May require signing or deaf oral interpreter May require visual (text?) communication mode in noisy situations.
Profound Hearing Loss	91 dB +	Considered deaf May hear some loud sounds Does not rely on hearing as primary channel for communication May wear hearing aids to Assist with environmental & warning sounds and the rhythm of speech	Depends on a visual communication mode ie. speechreading ,sign language or a combination of both Requires signing or deaf oral interpreting and/or visual text system