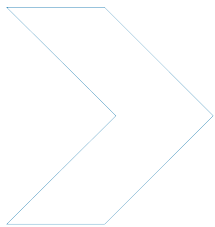


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Best practice in OHSW mass media campaigns

LN Wundersitz

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Best practice in OHSW mass media campaigns

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ABSTRACT

This report provides a timely review of what is currently known about occupational health, safety and welfare (OHSW) mass media campaign design and evaluation. The research builds on existing collective OHSW knowledge by improving the evidence base for conducting effective mass media campaigns. An industry review was undertaken to investigate the specific role of mass media in promoting OHSW issues. Interviews with key personnel involved in OHSW communications campaigns provided insights into the processes involved in developing and evaluating mass media campaigns. Australian and international public health literature published during the last decade was also reviewed to examine what elements make an OHSW mass media campaign effective and how future campaigns might be enhanced. The review describes current psychological theories of behaviour change and social persuasion that are relevant to OHSW mass media campaigns. In terms of mass media campaign design, factors that can improve campaign effectiveness were identified, the effects of different levels of advertising exposure were considered and the efficacy of threat appeals and alternatives (i.e. positive emotional appeals) were discussed. Recent campaign evaluations were reviewed to highlight current key issues in OHSW campaign evaluation research. The report concludes with constructive recommendations for best practice for OHSW mass media campaigns.

KEYWORDS

Occupational Health Safety & Welfare (OHSW), mass media, campaign effectiveness, advertising

Summary

Mass media campaigns can play an important part in occupation health, safety and welfare (OHSW) by promoting safe workplace practices to a large part of the population. The current study aims to build on existing collective OHSW knowledge by improving the evidence base for conducting effective OHSW mass media campaigns.

This report provides a summary of the current state of knowledge regarding best practice for OHSW mass media campaigns. An industry review was undertaken to investigate the specific role of mass media in promoting OHSW issues. Key personnel involved in OHSW communications campaigns were interviewed to provide insights into the processes involved in developing and evaluating mass media campaigns. Australian and international public health literature published from 2001 to 2010 was also reviewed to examine what elements make an OHSW mass media campaign effective and how future campaigns might be enhanced. The literature review specifically focused on:

- The latest theoretical models of behaviour change relevant to mass media campaigns
- New issues associated with campaign development such as message content, type of appeal and message delivery
- The efficacy of threat appeals and alternatives
- The effect of different levels of advertising exposure
- Evaluations of OHSW mass media campaigns

Significant findings from the industry review and literature review are summarised below.

INDUSTRY REVIEW

- Respondents appeared to have realistic expectations about what mass media campaigns can achieve. Mass media is used to raise awareness of broad OHSW issues and for agenda setting with only a minor role in changing behaviour.
- Tactical or targeted activities are preferred for campaigns communicating specific messages for specific groups or industries.
- The decision to use mass media is dependent on factors such as the type of message, the size of the target audience and the resources available.
- There was much variation in the frequency, size and intensity of campaigns between jurisdictions, which reflected differences in budgets and the level of resources available.

THEORIES OF BEHAVIOUR CHANGE

- Health-related mass media campaigns appear to be more successful when well-researched psychological theories of behaviour change are used to develop the campaign. Theory can provide a conceptual base for campaigns and assist in developing message strategies. While these findings are likely to apply in the OHSW context, few OHSW campaign developers use a theoretical framework in campaign design.

CAMPAIGN DEVELOPMENT

- Mass media campaigns are most effective when combined with other intervention activities such as education initiatives, enforcement (i.e. inspections), and community engagement.

- The campaign objectives must be clearly defined and appropriate variables should be selected that can measure whether these objectives were achieved.
- The process for identifying the target behaviour and target group should be data driven and systematic.
- Segment the target audience then tailor the message and communication channels according to their motivations and preferences.
- Combine different types of media to reach as many as possible in the target audience.
- Sufficient resources are necessary to reach the target audience and to sustain appropriate exposure to the campaign.

THREAT APPEALS

- Fear based appeals are often used in campaigns targeting young workers. Despite much research, the literature examining the effectiveness of threat appeals is inconclusive. There are some suggestions that fear appeals can have an impact but only when specific conditions are satisfied. The fear appeal must describe a threat (emphasising severity and susceptibility) and suggest a specific plan for reducing the threat (e.g. a safe behaviour) that is possible to carry out, perceived as effective, and allows the target audience to believe that they are capable of performing the safe behaviour. The campaign may be counterproductive without all of these factors, as individuals may believe that they are unable to protect themselves from the threat, resulting in defensive and maladaptive responses. On this basis, fear appeals should be used with caution in the OHSW context.
- Emerging research suggests response efficacy (belief that a message provides an effective and useful coping strategy) may also influence the effectiveness of positive emotional appeals. Given the current interest in emotional appeals in Australian OHSW campaigns, this should be a focus of future research.

ADVERTISING EXPOSURE

- In the absence of any new knowledge specific to OHSW mass media campaigns, industry standards suggest three exposures are needed to achieve minimum effective frequency.
- More comprehensive documentation of campaign activities, duration and intensity are needed to better understand the relationship between exposure levels and OHSW outcomes.

EVALUATIONS OF OHSW CAMPAIGNS

There were very few published evaluations of OHSW mass media campaigns and the quality of evaluations varied.

- Where possible, evaluations should be based on before and after comparisons of work-related behaviours or variables that can be objectively observed and are closely linked to occupational safety.
- Behaviour change might occur many years after a campaign ends but longer-term effects are largely unknown and are difficult to measure.
- Findings from evaluations of OHSW campaigns should be widely disseminated and published in the peer-reviewed literature.

Contents

1	Introduction	1
2	Industry review: The role of mass media in OHSW	3
2.1	Background	3
2.2	Method.....	3
2.3	Results: Responses from participants	4
3	Literature review	13
3.1	Method.....	13
3.2	Recent reviews	14
3.3	Theories of behaviour change	16
3.4	Campaign design and development	20
3.5	Evaluations of OHSW mass media campaigns	31
4	Best practice for OHSW mass media campaigns	42
	Acknowledgements	46
	References	47
	Appendix A – Advantages and disadvantages of specific media	52

1 Introduction

It is estimated that around 689,500 workers experience a work-related injury or illness in Australia each year (ABS, 2006). In addition, approximately 450 people in Australia die each year as a result of work-related traumatic injuries (Safe Work Australia, 2009). Occupational injuries and illnesses can have a severe impact on workers, their families, employers and the wider community.

Mass media campaigns are used extensively as a means of promoting attitude and behaviour change to improve public health. For example, campaigns have encouraged participation in physical activity (Cavill & Bauman, 2004), promoted safer road use (Woolley *et al.*, 2001), and smoking cessation (Mc Phee *et al.*, 1995) and health service utilisation (Grilli *et al.*, 2002). The use of mass media campaigns is based on the premise that targeting the population as a whole has the benefits of potentially altering the knowledge or attitudes of a large proportion of the population and providing social support for behaviour change (Redman *et al.*, 1990). Occupational health and safety organisations are increasingly using mass media campaigns, amongst other initiatives, to enhance worker safety. Given this investment in mass media campaigns, a thorough examination of the evidence of its effectiveness in influencing work-related health behaviours is warranted.

To determine the effectiveness of mass media campaigns, a scientific outcome-based evaluation (e.g. examining changes in injury levels) is desirable. However, a rigorous evaluation is difficult and costly to achieve and may not necessarily provide definitive answers. In the absence of such an evaluation, a more constructive approach is to review the literature to determine what conditions are necessary for a mass media campaign to successfully change occupational health, safety and welfare (OHSW) related behaviours and outcomes.

The aim of this project was to determine best practice for OHSW mass media campaigns by reviewing recently published Australian and international public health mass media literature and conducting an industry review. The industry review focused on ascertaining what role mass media has in promoting OHSW both in Australia and overseas. The industry review also provided a description of very recent OHSW campaigns and perceptions as to what works and what does not work in these campaigns from the people who have designed and implemented them.

The literature review examined what elements make a OHSW mass media campaign effective and how future campaigns might be enhanced, rather than concentrating on whether OHSW advertising campaigns are effective or not. The scope of the literature review was to examine several current issues:

- The latest theoretical models of behaviour change
- New issues associated with campaign development
- The efficacy of fear inducing appeals and alternatives
- The effect of different levels of advertising exposure

Evaluations of previous OHSW mass media campaigns were also reviewed to see what lessons might be learnt from past experiences. The final stage of the project was to summarise best practice for OHSW mass media campaigns and assess the evaluations.

This research project will assist Safework SA in improving the effectiveness and efficacy of their campaigns and potentially reduce occupational injuries and injury claims. The project builds on existing collective OHSW knowledge by improving the evidence base for conducting effective mass

media campaigns. The findings from this research will benefit Australian jurisdictions as well as the wider international community.

COMMENTS ON ADVERTISING AND SOCIAL MARKETING

It is important to make a distinction between consumer advertising and social persuasion advertising. In general consumer advertising does not seek to modify a specific behaviour but merely channel that same behaviour in a certain direction. For example, the objectives in the case of soft drinks are not to start people consuming soft drinks but merely make them switch brands. In contrast, social persuasion advertising attempts to convince people that their current behaviour is undesirable and that they should change it. Due to these fundamental differences, principles associated with consumer advertising should not be systematically applied to health advertising (Woolley, 2001). This philosophy is maintained within this report.

While other reviews of OHSW campaigns have looked more broadly at social marketing campaigns (e.g. Lavack *et al.*, 2008b; Mustard & Bielecky, 2007) this report specifically examines the role, design, development and evaluation of mass media campaigns. Mass media campaigns are defined as “purposive attempts to inform, persuade, and motivate a population (or subgroup of a population) using organised communication activities through specific channels, with or without other supportive community activities” (Rice & Aitkin, 2001, p.7). In contrast, social marketing campaigns messages are delivered through multiple channels or activities and they may or may not include a mass media component. Although the main focus of this report centres on mass media campaigns, they are discussed within the context of the wider social marketing literature.

2 Industry review: The role of mass media in OHSW

2.1 Background

An industry review was planned to broadly examine what is currently regarded as best practice for OHSW and public health mass media campaigns. An initial discussion was held with communications and media advisor managers at Safework SA to obtain information about past and present campaigns and to clarify processes involved in developing campaigns. Valuable insights were gained from the discussion and it was noted that there were variations in the scale of OHSW campaigns in different Australian jurisdictions according to available resources.

It was also apparent that Australian OHSW organisations generally have good information about industries and workplaces that perform poorly in terms of workplace safety. As a result, OHSW agencies are able to develop a targeted approach to campaigns and interventions. Given that OHSW interventions already have quite a targeted approach, this part of the study seeks to determine the specific role of mass media in OHSW campaigns and investigate the processes involved in developing such campaigns. To provide insight into these specific issues, interviews were held with key personnel involved in OHSW communications campaigns from both Australia and overseas. Consultation with different jurisdictions provides opinions and experiences representing different populations and levels of resources.

2.2 Method

Communications managers from OHSW state government organisations in five States in South Australia were contacted and invited to share their views on OHSW mass media campaigns. Telephone interviews were conducted with senior communications counterparts from three Australian jurisdictions in addition to South Australia: New South Wales, Victoria and Tasmania. These jurisdictions represented different population sizes and levels of resources.

Participants were asked a series of questions:

- Under what circumstances might you consider undertaking a mass media campaign?
- What processes are involved in developing a campaign?
- Are campaigns supported by other activities?
- What have you learnt from past campaigns?
- How are campaigns evaluated?

Responses to the questions were noted and a summary of the main comments and issues associated with OHSW campaigns are presented in the following section.

An attempt was also made to obtain information from personnel involved with OHSW campaigns worldwide. Key personnel from OHSW government based organisations that had recently produced mass media campaigns were contacted and sent the same list of questions. Responses were received from Canada, and the United Kingdom. Some general comments were also received from New Zealand.

2.3 Results: Responses from participants

This section documents issues raised in discussions with various individuals who are involved with planning, developing and executing OHSW mass media campaigns. *The content of this section reflects solely the opinions of these individuals and is presented without comment.*

2.3.1 The role of mass media in OHSW

There was general consensus that mass media campaigns are useful for raising awareness of OHSW issues and agenda setting with a more minor role in changing behaviours. Mass media campaigns are used when an OHSW issue has broad relevance or to provide general guidance on how worker safety related behaviour might be improved. Due to their large reach, mass media campaigns are particularly useful when it is desirable to target a large number of industries or span a wide demographic. However, the advantage of reaching a large audience must also be balanced with the higher cost of using mass media channels. Therefore, the decision to use mass media is dependent on a number of factors including the type of message, the size of the target audience, and the monetary resources available.

It was acknowledged by respondents that mass media is not the best way of communicating specific messages for specific groups (e.g. wearing seat belts in forklifts) or for providing in-depth explanations of problems or solutions. However broad general awareness campaigns can often set the scene or encourage the public to be more receptive to campaigns targeting specific issues. For example, general campaigns promoting Worksafe Victoria and workplace safety have led to more positive perceptions of the organisation and so now the public is more receptive to specific campaigns such as those emphasising the frequency of workplace inspections.

In Victoria, a three tier structure or framework is used for OHSW marketing and communications in which mass media is typically used for tier 1 and 2:

1. Setting moral arguments (e.g. stating why OHSW is important)
2. Cultural campaigns (e.g. workplace culture – being able to speak up without fear, supervisors recognising their responsibility for safety in workplace)
3. Tactical activities (e.g. educational events & seminars, direct marketing to specific industries, segments or about specific hazards).

In a similar vein, Tasmania favours a strategic approach to OHSW campaigns where mass media is used for broad awareness raising campaigns followed by more specific campaigns targeting specific groups and using more direct means of communication. Canadian counterparts from Manitoba have a comparable perspective concerning the role of mass media campaigns:

“Mass media is generally used to promote awareness about OHS. SAFE Manitoba uses it to help people understand and be aware of the behaviour we want them to change (spotting hazards, lifting properly, etc.). Changing behaviours involves a more comprehensive approach – with raising awareness as the first step. Our thinking is that people need to be aware of what they need to change and then told how to do so through what we call a fulfilment piece (brochure, fact sheet, interactive quiz). They are pushed to change their behaviour and helped to do so through training, enforcement and the workplace safety committee model we have in Manitoba.”

While mass media campaigns were seen as having an important role in OHSW, respondents recognised that they should not be used in isolation but combined with other 'tactical' activities for greater impact. Such activities include educational seminars or workshops on specific topics, direct face-to-face communications, direct mail outs, targeted press, publications on specific topics, workplace advice (i.e. workplace inspection on request) and Worksafe Week activities. Tactical approaches are often used to target individual workplaces to change their injury record or focus on specific types of injuries, and in many cases they are used without a mass media component. In the United Kingdom, mass media advertising is integrated with inspection and education initiatives as much as possible because it can assist in extending campaign life. Other jurisdictions also attempt to follow this philosophy but one respondent admitted that in reality it does not always happen.

2.3.2 Campaign development

OHSW mass media campaigns are usually strategically developed but some jurisdictions are driven, to some extent, by external factors (e.g. reaction to high-profile incidents, board directives). Industry respondents indicated that most campaigns were developed based on: trends in injury claims, identifying common themes, external factors, or pre-campaign research. Examples of specific OHSW campaigns resulting from these strategies are provided. Note that some campaigns originate from several of these approaches.

TRENDS IN INJURY OR WORKERS COMPENSATION CLAIMS

Respondents indicate campaigns are frequently developed according to the latest trends in workplace injuries. Injury statistics are usually based on workers compensation claims and are reported in statistical bulletins. The statistics are useful for identifying and targeting specific groups (e.g. blue collar workers), industries (e.g. hospitality), injuries (e.g. back pain) or hazards (e.g. slips and trips) associated with high levels of claims or injuries. This type of information can be quite specific therefore in some jurisdictions it is used for very targeted campaigns that often do not involve a mass media component but more direct means of communication. For example, in Tasmania agricultural labourers were identified as an occupational group most at risk of workplace injuries, resulting in the 'Rural' social marketing campaign. Face-to-face contact was viewed as being more important than mass media communications and very little paid advertising was used. The campaign involved seminars targeting farm workers at Ag Fest, editorials in publications, promotional activities, farm safety publications, and inspectorial blitzes of farms. The latter activity involved workplace inspectors visiting farms where they identified safety issues and gave farmers the opportunity to fix any problems before returning several months later. Generally targeted approaches are well received by workplaces and industries.

Other jurisdictions have used claims to identify the most prevalent injuries then proceeded to find common themes that might be presented to a larger audience. For instance, in Victoria it was found that 55% of worker's compensation claims were musculoskeletal and it was felt that this was an obvious issue to tackle. The way these types of injuries occur varies from workplace to workplace so there was uncertainty as to whether mass media should be used or not. Campaign developers then considered the question: "If a campaign is developed on a mass level, are there any common issues?" To answer this question campaign developers referred to a literature review from the United Kingdom that reported most individuals in the workplace (boss, supervisor, worker) take the easiest option or 'the path of least resistance' to complete the job. For example, workers often have the safety training but take short cuts or don't speak up about their safety, not taking responsibility for their own safety.

A decision was made to target supervisors and workers in the mass media campaign about the prevention of workplace injuries. Mass media was not used to communicate to bosses because it was thought that direct means would be more effective. Essentially, the campaign message was that action

or inaction can cause injuries and that there is no reason why workplace injuries should happen. The campaign intended to inform the audience about the causes of accidents in the workplace and intentionally did not provide any recommendations for actions.

The television advertisement used computer animation and showed several scenarios from different workplace settings to make the advertisement visually relevant. The advertisement depicted how accidents happen by showing a supervisor turning a blind eye to safety (e.g. not holding a two-way conversation about safety and workers taking short cuts). Tracking of the campaign indicated that it hit the mark; supervisors appreciated their role and there was more consultation regarding safety in the workplace between supervisors and workers.

COMMON THEMES

In one jurisdiction, the communications manager noted that mass media campaigns in road safety typically concentrate on specific themes such as drink driving, speeding, wearing seat belts, and fatigue but in OHSW there are many different industries. Campaign developers from this jurisdiction then attempted to identify any common themes within OHSW that would suit an audience on a mass scale. This process identified one common thread among all workplaces: a supervisor is essentially responsible for safety. Following this revelation a campaign aimed at supervisors and workers was developed and tested across industries. Using black humour, the campaign posed a question to supervisors 'Are you asking them to do something safe?' and also encouraged workers to speak up for their safety concerns.

Evaluation of the campaign included an on-going self-report phone survey of a cross-section of workers and employers. Message take out was found to be strong, the number of workers who felt empowered to speak up increased and there were other self-reported changes in employers/supervisors. It was acknowledged that it was impossible to link changes in injuries and fatalities to the campaign.

EXTERNAL FACTORS

For the most part, mass media campaigns appear to be data driven. However, in some jurisdictions mass media campaigns have been conducted intermittently during the last decade, sometimes due to specific circumstances or events within their jurisdiction. In some cases this was due to reactions to previous mass media campaigns, high profile workplace fatalities or injuries, board or government directives or the absence of recent mass media campaigns. One recent event was reported as influencing the direction and type of OHSW mass media campaigns Australia wide. Each of the Australian OHSW government organisations interviewed has recently extended their role as a regulatory authority to encompass an advisory role (or combine with another organisation to fulfil this role). The restructuring presented the challenge of creating a positive image for the organisation and workplace safety and getting rid of the "negative profile and stigma surrounding workers compensation". Essentially, these organisations wanted to be perceived as not simply a safety regulator but as an approachable organisation where workers and employers could seek information and advice. Therefore a campaign was needed to raise general awareness of workplace safety and to provide brand recognition.

In response to this challenge, Worksafe Victoria conducted market research to explore community perceptions concerning how people feel they fit into the workplace, and to identify any negative associations with the organisation. The focus groups and community attitudes research suggested that a campaign aiming to position together the brand (i.e. Worksafe Victoria) and workplace safety should be broad based, use a powerful, emotional appeal and stay away from death. The outcome was a campaign titled 'Homecomings'.

The campaign message emphasised that ‘The most important reason for making your workplace safe is not at work at all’. The campaign sought to take the issue out of the workplace and make it relevant to everyone. Note that no instructions or recommended behaviours were provided in the campaign message. The campaign also included a state wide mail out of posters to all businesses in Victoria. This was the only occasion that a mail out was conducted on this scale - they were usually more targeted. The campaign is currently winding down and is only aired around the Christmas/ New Year period.

The campaign evaluation consisted of media tracking after the launch of the campaign and post-campaign research examining awareness, message take-out, self-reported attitudes, and brand position. There was no baseline data prior to campaign. Outcomes included:

- Ratings of the organisation increased.
- Increased public appreciation of the importance of OHSW.
- Repositioning of organisation as a community organisation and less like a government bureaucracy.
- More individuals and workplaces referred to the organisation to get information.
- Anecdotal evidence that attitudes to inspectors improved.
- Unintended effects on organisation staff – they felt they had an important job.
- Individuals were more likely to discuss safety in the workplace.

While this campaign was developed in Victoria most other Australian jurisdictions have used it, or plan on using it in the near future, due to its broad appeal. For instance, NSW bought the ‘Homecomings’ campaign in 2006 and their annual perceptions research and campaign research suggested that the campaign was effective based on high recall and increased perceived helpfulness and approachability scores. The campaign is still running and consideration is being given to entering a fourth phase that might incorporate a more specific message that tells workers how to get home safely (i.e. what they must do). However some jurisdictions have noticed that this emotive style of campaign does not resonate with males aged 18 to 24 years.

OTHER PRE-CAMPAIGN RESEARCH

Some respondents indicated that mass media campaigns evolved through their own market research, which typically involved focus groups or telephone surveys designed to elicit information about community and personal attitudes. In Tasmania, research was undertaken to examine the different audience segments that might be targeted in a new campaign. The resulting television and billboard campaign ‘Don’t worry it will be someone else’ targeted a specific group called the ‘obstructors’ and aimed to get them to do something about workplace safety.

Some, but not all, jurisdictions conduct their own research to pre-test concepts and specific messages to define media strategies, target audiences and the mix of media channels. In the United Kingdom, for example, the Health and Safety Executive (HSE) conducted profiling analysis and qualitative tracking research to assist in identifying the primary audiences and pinpoint specific behavioural challenges for the ‘Shattered Lives’ campaign. Some key behaviour challenges were identified and these helped to focus the media strategy. The HSE also recognises that pre-testing concepts and messaging across channels and setting up pre and post campaign evaluations that map media plans and usage are valuable activities to measure message and media effectiveness.

Less prevalent is the use of published research findings conducted by Australian and international counterparts to further develop and refine campaigns. This is most likely due to the lack of published information on OHSW campaigns. Only one jurisdiction mentioned using research findings from a literature review conducted in the United Kingdom when developing mass media campaigns (e.g. musculoskeletal injury and supervisor responsibility campaigns in Victoria).

A New Zealand researcher examining social marketing campaigns in a number of different health sectors including OHSW observed a lack of clarity in objectives when developing campaigns. Communications designers were just trying to put an advertisement on television, that is, they were often leaping to mass media without thinking 'why?' She suggested that generally, in social marketing the following questions should be asked:

1. What do we need to do?
2. Is mass media a useful tool?

Her research identified a need for campaigns to be better developed at the start so that they represent best practice and might also be evaluated: "Campaign effectiveness should be a major focus of the campaign right from its inception."

2.3.3 Campaign messages and delivery

TYPE OF APPEAL

Preferences for specific types of appeals in mass media campaigns tend to be very personal. Several respondents expressed a preference for emotive campaigns (e.g. 'Homecomings') over fear appeals while another respondent preferred fear campaigns because they felt they had greater impact and were remembered.

The use of shock or fear appeals in OHSW mass media campaigns and their reported effectiveness varies distinctly between jurisdictions. In the past, OHSW fear campaigns have had mixed success. In New South Wales (2000/01), a graphic fear campaign using a photo of a smashed brain was subject to controversy and caused huge public backlash resulting in no mass media campaigns for some time. In 2005 the 'Be safe not sorry' campaign featured graphic photos of real workplace injuries (i.e. amputations). The campaign was conducted using billboards, print and radio and was perceived to be effective. A Tasmanian campaign 'Don't worry it will be someone else' involved a graphic television advertisement and billboards depicting a mutilated hand. A strong reaction by the general public resulted in a sticker being placed over the mutilated hand on billboard advertisements with the words 'Covering it up won't make it go away'. The fear appeal was thought to not be effective because people tuned out and thought it would not happen to them. This was the only hard-hitting fear appeal used in a Tasmanian OHSW campaign and this type of appeal has not been used again.

More recently, the few campaigns that have used fear appeals have been reserved for the targeting of youth only, mainly because market research indicated that this was what young people wanted to see. In Victoria, pre-campaign market research suggested that a 'gruesome' style of creative approach was needed for young workers to take notice and feel that the message was relevant to them. Worksafe Victoria has generally tried to stay away from these type of graphic appeals on the basis that they can have unintended effects on other audiences. For this reason they tested the concept on other audiences who generally responded saying that they "did not like the ads but they knew why they were doing it". In the young worker campaign, graphic scenes were depicted to look realistic and believable ('it could happen'), rather than gratuitous.

Canadian television is highly regulated therefore graphic shock advertisements typically cannot be shown on television. Instead, graphic injury elements are placed online for the most part. As in Victoria, market research in Manitoba suggested graphic campaigns might work well with youth, as the graphic elements were what they wanted to see. A website based campaign targeting young workers called 'Assess the Risk' combined an incentive with graphic videos concerning statistically relevant injuries. Generally, shock is used in campaigns where it can help with the creative hook. The Extended Parallel Process Model is followed to ensure people watching the graphic elements do not manage their feelings of fear rather than their actual behaviour (see Section 3.4.2 for a discussion of fear appeals).

Only one respondent mentioned using a television celebrity presenter (i.e. Alan Dale) to front a television, press, radio, and billboard campaign about managing hazards at work. The campaign 'Play it safe' was an educational mass media campaign conducted in the late 1990s in Tasmania. Information on the effectiveness of this campaign was not available.

CAMPAIGN INTENSITY

Respondents indicated that the intensity of mass media campaigns was primarily based on the budget. Little information was provided concerning the intensity of campaigns but there was some indication that levels vary between jurisdictions. For instance, two Australian jurisdictions recently used broad awareness campaigns but the intensity of the media plans differ. In South Australia the 'Look after your workmates' campaign had a light to medium media plan in which a television campaign was aired over seven weeks at a level of 100-150 TARPS (Target Audience Rating Points). This was accompanied by supporting media with advertisements on: billboards, press, light targeted radio, cafes, work sheds, trams, and billboards towed by bikes.

New South Wales takes a more moderate approach to campaign intensity. As part of the 'Homecomings' campaign two advertisements were aired on television at a level of 660 TARPS gaining a reach of 86%. A shorter advertisement with a level of 500 TARPS recorded a similar reach of 85%. The scheduling of the four phases of the homecomings campaign revolved around family orientated events or holidays (Easter, Mother's Day, International day of mourning) and times when a large audience was expected (World Cup). An effort was also made to coincide ethnic media (print/radio) with culturally relevant festivities (e.g. lunar new year).

MESSAGE DELIVERY

The following comments are opinions on the effectiveness of different types of mass media based on recent experiences.

- The relative effectiveness of media channels needs to be considered in light of: budgets, audience propensity to use, consumption rates, creative and message suitability.
- Television is the best form of mass media in terms of high recall of messages and when trying to reach a wide audience but it is also the most expensive media.
- For rural campaigns it is best to use regional television stations, specific rural newspapers (i.e. 'The Land') and existing networks.
- Direct mail outs and electronic mail are generally effective.
- Print is generally less effective than other types of mass media. Following a targeted campaign, when businesses were asked about how they heard about the Safework awards, print media was the least quoted response. Other than asking questions such as this, there are few measures to determine if it is an effective medium. If print media is

used, it needs to be a targeted approach, for example, campaigns aimed at blue collar workers should be placed in Sunday papers when they have more time to read a newspaper while the financial review is probably more appropriate for employers.

- NSW market research indicates that radio advertisements are being heard but the message is not necessarily being recalled. However radio can be useful for capturing specific audiences at specific times, for example, targeting the parents of children when they are in vehicles dropping off and picking up children from schools. This was necessary for a 'Building education revolution around schools' campaign promoting the safety of children at schools when construction is in progress (i.e. watching out for heavy vehicles).
- Billboards can be effective and the placement is very important. Billboards should be placed in locations where the target audience might be expected. For example, billboards depicting a manual handling campaign targeting nursing, hospitality, and manufacturing needs to be located near these industries.
- The Internet is used to provide information but not as a vehicle for showing advertisements in one jurisdiction.
- While more people might see television advertisements, a combination of different types of media is preferred and the type used will depend on the target audience.
- When targeting young workers or Generation Y television is not a particularly useful media but anything online generally works as well as viral options, social media, and sms blasts. Other successful ventures include placing OHSW messages inside pizza boxes and on posters in clubs. It is also important to have some sort of gimmick or free item to capture their attention. For instance, a poster competition involving a vehicle going to schools in New South Wales and giving away free items such as CD's and T-shirts was thought to be effective in the short term although longer term effects are not known. Another campaign targeting young workers in Victoria used the Internet and a combination of many different tactical means. A display at career expos emphasised speaking up at work and incorporated the "Body-o-matic", a vending machine with realistic body parts inside. The on-line component was designed to bring workplace safety into the mainstream of young people. On the website, young people were encouraged to write blogs about workplace accidents. There was also an additional interactive website called "The Pain Factory" that included games and video clips highlighting workplace injury and providing tips on workplace safety. This site was built and hosted by nine.msn and not branded as a government agency. Links to this website were placed at other sites young people might visit. The host indicated that the number of hits was strong relative to other promotions.
- Manitoba (Canada) adopts a similar philosophy whereby the type of media used in a campaign is dependent on the target audience. Messages are placed on mall posters, radio, television, the Internet (e.g. Facebook), and in bathrooms for youth while for older demographics the most effective media are billboards, bathroom advertisements and television.
- The combination of different forms of media is useful to reach a wider audience. In New South Wales the Homecomings campaign television advertisements also featured a SMS call-to-action (i.e. send an SMS to receive information). A larger than expected response was received to this initiative resulting in 5000 information kits being sent to employers and workers. The kits for workers contained fact sheets about workplace safety (i.e. what to do if injured and to avoid accidents) in English and 14 other languages. The kit for employers contained more in-depth material about risk

assessment and how to gain assistance and grants. In addition, this exercise was useful as SMS responses could be tracked to the different advertisements, timeslots and television stations providing a more effective means of targeting the audience.

2.3.4 Evaluation of campaigns

There was a general consensus among respondents that changes in work-related fatalities and injuries cannot be causally linked to mass media campaigns because mass media does not occur in isolation; many other factors or initiatives (e.g. legislation, enforcement, education) can impact on the number of injuries. While changes in injury levels are monitored in some jurisdictions a direct link with mass media campaigns is not made as it is acknowledged that many elements work together to motivate individuals to change their workplace safety related behaviour. Some respondents also reported that it was difficult to make a causal link due to significant time lags in obtaining injury data. Changes in occupational fatalities were not seen as a useful indicator of campaign effectiveness because the numbers in each jurisdiction were very small.

Most jurisdictions conduct media tracking during the campaign followed by more detailed market research after the campaign that examines awareness of the campaign, self-reported attitudes, message take out, recall, and brand position. Fewer jurisdictions mentioned that they specifically conduct baseline research before the campaign commences. However phone surveys concerning community perceptions, attitudes and message recall are undertaken on an annual basis in New South Wales and Manitoba, Canada for this purpose, amongst other things. The latter also conducts online surveys for campaigns aimed at young workers because they are notoriously hard to contact through phone surveys. None of the jurisdictions appeared to monitor the long-term impact of their mass media campaigns.

Workplace inspectorial activity was rarely used as a means of evaluating campaigns. Respondents stated that this was because some inspections were targeted (presumably at workplaces with a bad safety record) so it was difficult to directly link the outcome of inspections to mass media campaigns. The exception was specific campaigns where inspections were an integral part of the campaign and deemed directly relevant, such as the Tasmanian rural farm campaign.

2.3.5 A national approach to campaigns?

With the imminent national harmonisation of OHSW regulations in 2011 there has been a push for a harmonised approach to mass media campaigns. While respondents agreed that the concept of a national campaign has potential, particularly for smaller jurisdictions that have fewer resources and cannot afford to create large mass media campaigns, they acknowledged that there are also some significant barriers. There were suggestions that agreement between jurisdictions would be difficult because each jurisdiction has their own ideas and a different environment in terms of political agendas, Ministers, markets, and community attitudes. One respondent argued that mass media campaigns are usually developed based on occupational issues, injury statistics or claims from the individual jurisdiction and these may differ between jurisdictions but another suggested that this might be overcome by choosing an issue that causes the majority of injuries in Australia or by undertaking a broad general awareness campaign that is then followed by specific campaigns.

While some respondents suggested that communication between different jurisdictions has been on an ad hoc basis in the past there was evidence that the sharing of knowledge and resources is improving. Quarterly meetings are held (either in person or via phone conference) between state communications managers and the national OHSW body, Safework Australia, to discuss how they might work together more effectively. For instance, in regard to Safework Week the federal body sets the agenda but individual states decide how they implement it and what activities are included.

Individual states appear to be satisfied with this arrangement. A national communications advisory group (HOWSA) is also working on the harmonisation of publications concerned with workplace safety. There was evidence of cooperation between jurisdictions with larger jurisdictions (with greater resources) assisting jurisdictions with fewer resources.

3 Literature review

3.1 Method

Australian and international mass media literature published during the last decade (i.e. 2001 - 2010) was reviewed to determine best practice for OHSW mass media campaigns. Where necessary public health literature was examined but the primary focus was on literature examining occupational injury, disease and disability prevention. Consequently the disciplines covered in the literature search included: OHSW, Psychology, Public Health, Communications, Marketing and Media, Road Safety, Transport, and Humanities and Social Sciences.

Literature searches were performed using the following electronic reference databases and sources:

- PubMed - Medical
- Academic Search Premier - Media and health
- PsychInfo -Psychology
- Informit - including IREL - Australian Industrial Relations Database
- Cochrane Library
- OHSW journals - including Safety Science, Journal of Occupational Accidents
- Interstate and overseas Workcover equivalent websites
- Safework SA library

The search strategy was customised for each database and included journal articles, reports, conference papers, reviews, and electronic materials. Resulting articles were restricted to those published in the English language. The bibliographies of included papers and relevant reviews were also examined to identify relevant literature. While this review was not intended to be exhaustive, it was intended to be representative of literature published during the last decade.

The literature search focused on:

- The latest theoretical models of behaviour change relevant to mass media campaigns
- New issues associated with campaign development such as message content, type of appeal and message delivery
- The efficacy of threat appeals and alternatives
- The effect of different levels of advertising exposure
- Evaluations of OHSW mass media campaigns

Some of these issues have been covered in a recently published report by CASR concerning best practice for road safety mass media campaigns (Wundersitz *et al.*, 2009). Given that OHSW and road safety have much in common (e.g. goal of reducing injuries, changing health related behaviours), findings from the previous report are frequently referenced but many additional comments relevant to OHSW are included in the current report.

To determine what components might enhance an OHSW mass media campaign, the literature review also focused on research evaluating the effectiveness of OHSW mass media campaigns. The campaigns included were those involving at least one form of mass media (e.g., TV, press, radio,

billboards, the Internet) either alone or in conjunction with other interventions. Campaigns focusing on both primary prevention (i.e. aims to reduce the incidence of injury/illness) and secondary prevention (i.e. aims to reduce the duration or severity of injury/illness through early detection or corrective interventions) were included. An additional criterion was that at least one form of mass media had to be purchased. In-house campaigns (administered in a single organisation or single workplace) or training materials were not included. It was important to adhere to strict inclusion criteria otherwise obtaining evaluations could become very 'hit and miss' and the integrity of the literature search might be undermined. For instance, some jurisdictions involved in the industry review offered unpublished evaluations of their campaigns. It is acknowledged that by confining this review to published evaluations the literature may be biased towards studies that achieved a positive result; unsuccessful results are less likely to be published.

Each evaluation of an OHSW mass media campaign identified in the literature was examined and assessed in terms of: the country where the campaign was conducted; the target behaviour and audience; the campaign rationale and approach; the campaign message; the campaign duration, intensity, cost and types of media used; any supporting activities including workplace inspections; method of evaluation; and outcomes of the evaluation with particular emphasis on campaign effectiveness in the sense of changes in objective behaviour (as distinct from recall or changes in attitudes).

The literature search identified over 180 mass media related publications from the public health domain. Of these around 45 specifically related to OHSW mass media campaigns suggesting this is an area of limited published knowledge. Ten publications were evaluations of campaigns that met the inclusion criteria.

3.2 Recent reviews

The following sections summarise key findings from three pertinent reviews of the mass media literature published since 2001, they provide an overview of the general principles associated with effective mass media campaigns. The first two studies draw on literature from public health in general, while the third study specifically reviewed OHSW social marketing campaigns.

RANDOLPH & VISWANATH (2004)

Drawing on literature from public health mass media campaigns published from 1998 to 2003 Randolph and Viswanath (2004) identified a number of factors that they felt contributed to the effectiveness of public health mass media campaigns. These factors are listed below. Randolph and Viswanath suggested that few campaigns adopted the last two criteria.

- Ensure the audience is sufficiently exposed to the campaign messages through careful manipulation of the information environment. This might be achieved by either buying the time or space in the media, receiving time and space donated by networks or earned through publicity events that gain media coverage.
- Use social marketing techniques to create appropriate and tailored messages (i.e. use message framing, targeted messages).
- Ensure that there is a supportive environment or structures that facilitate the target audience to make the recommended change.
- Understand the determinants of health related behaviour that can potentially lead to the desired health outcomes and incorporate these theories in campaign development.

- Implement process analyses and assessments of exposure to campaign messages to make any adjustments to the campaign mid-course and to assist in explaining final outcomes.

NOAR (2006)

Based on a review of public health literature, Noar (2006) argued that in the last decade health mass media campaign designers have increasingly adhered to principles of effective campaign design, rather than discovering new principles and this has resulted in increased campaign success. Some of the major principles for effective campaign design, applied to health mass media campaigns, include:

- Conduct formative research with the target audience to clearly understand the problem or behaviour.
- Use theory as a conceptual basis for the campaign.
- Segment the audience into meaningful subgroups based on important demographics (e.g. age, gender, socio-economic, risk, personality).
- Use a message design approach directed to the targeted audience segment. Develop novel and creative messages that start interpersonal discussions and persuade people important to the target audience.
- Use mediums widely viewed by the target audience and strategically position campaign messages within the medium.
- Conduct a process evaluation that includes the monitoring and collecting of data on implementation of campaign activities.
- Use a sensitive outcome evaluation design that reduces threats to internal validity and allows causal conclusions about influence on attitudes and behaviours.

MUSTARD AND BIELECKY (2007)

Mustard & Bielecky (2007) conducted a review of 56 social marketing campaigns that used some form of public communication to address occupational health. It was concluded that social marketing methods could be effective in improving the health of workers and the following points were identified to guide future OHSW social marketing policies:

- Campaigns integrating mass media with other companion programs involving inspections and enforcement or education and training appear to be more effective than programs that rely exclusively on mass media.
- Campaigns need to have sufficient resources to reach the target audience and to sustain exposure to the campaign.

The review also concluded that the quality of information available on the effectiveness and cost effectiveness of OHSW campaigns was weak. Only one half of the campaigns were judged to be evaluated to a higher quality standard. To overcome this weakness and achieve high quality evaluations, the following points were offered:

- Sufficient attention must be given to internal validity when designing the evaluation. Any changes in behaviours or attitudes should be attributable to the campaign rather than other factors. Incorporating a control group is one way to achieve this.

- Both intermediate outcomes (i.e. awareness of the campaign, knowledge, attitudes) and final outcomes (i.e. behaviours, injury incidence) need to be measured.
- The importance of replicating campaign evaluations conducted in other settings must be recognised. Campaigns with a good design that are well executed and provide strong evidence of effectiveness should be adopted by others and implemented.
- Comprehensive documentation of campaign activities is essential to understand relationships between exposure and campaign outcomes.

3.3 Theories of behaviour change

There is a general consensus in the public health literature that the most effective mass media campaigns use well-researched psychological theories of behaviour change to develop the campaign (e.g. Noar, 2006; Randolph & Viswanath, 2004). Theory can provide a conceptual foundation for a campaign, aid in creating appropriate message strategies and where they might be focused, and accommodate the possibility of evaluating the effectiveness of the campaign. Theory can also offer insight as to why a social persuasion campaign might not result in the desired behaviour or attitude change despite some success such as message awareness or acceptance by the target audience. In terms of OHSW mass media campaigns, it is important to understand what factors influence worker behaviour, what motivates a worker to undertake safe behaviours or not, and the process of behaviour change.

The theories developed to identify pathways and determinants that lead to behaviour change are applicable across all public health domains including road safety and OHSW. Therefore, the following section is largely taken directly from a previous report that described psychological theories applicable to road safety (Wundersitz *et al.*, 2009) but with some additions and examples taken from OHSW literature. Note that this is a selective list of theories that are deemed to be most relevant.

3.3.1 Theories predicting behaviour change

THEORY OF REASONED ACTION AND THEORY OF PLANNED BEHAVIOUR

The Theory of Reasoned Action (TRA), developed by Fishbein and Ajzen (1975), suggests that people's intentions to behave in a certain way are based on a set of weighted beliefs about the consequences of such behaviour. Essentially, intentions affect behaviour. This theory assumes that people make logical and consistent decisions, and that attitude and social normative beliefs are the determinants of intentions.

The Theory of Planned Behaviour (TPB: Ajzen, 1985) builds on the TRA with the addition of perceived behavioural control as a determinant of intentions. This additional variable extends that model to explain behaviour where the individual feels they have little control over whether a violation occurs or not. Consequently, if you want to change behaviour, behavioural intentions must first be changed and they are dependent on behavioural beliefs, normative beliefs and control beliefs.

THEORY OF INTERPERSONAL BEHAVIOUR

The Theory of Interpersonal Behaviour (Triandis, 1977) is similar to the TPB as it also includes normative factors and the perceived consequences of behaviour as a predictor of intentions and consequently behaviour. However, it differs in that it includes habits as a predictor of behaviour. Habit refers to how automatic a process is, that is, behaviour might be habitual rather than intentional (or due to physiological arousal or facilitating conditions). This theory suggests that campaigns targeting habitual behaviours (e.g. smoking, habitual drink drivers) will have little effect if they concentrate on

intentions or factors that influence intentions. This is because individuals do not consciously consider the advantages and disadvantages of habitual behaviour.

HEALTH BELIEF MODEL

The Health Belief Model was one of the first behavioural change models and it has been modified several times over the years (e.g. Rosenstock, 1977). The theory postulates that individuals are motivated to take positive action and promote their health due to a desire to avoid negative health outcomes. For example, a seatbelt is worn to avoid serious injury in a crash. The model is broader than the TPB because it also includes different emotional responses: perceived susceptibility and perceived seriousness of the consequences. Together these factors define the perceived threat with a given behaviour that must be high for an individual to consider behaviour change. When considering behaviour change, the perceived benefits and the perceived barriers are compared to perform a cost benefit analysis. To further facilitate behaviour change, a high level of self-efficacy is required and cues to action are needed as motivators to raise the likelihood of action. The processes in this model assume that the individual is a rational decision maker.

PROTECTION MOTIVATION THEORY

According to Protection Motivation Theory (Rogers, 1975), adaptive and maladaptive coping responses can result from a health threat due to two different appraisal processes: threat appraisal and coping appraisal. Threat appraisal is a function of the perceived severity of the threat and vulnerability to the threat and the extrinsic and intrinsic rewards associated with an unsafe behaviour (e.g. saving time when safety procedures are not followed). The perceived severity of the threat includes both potential medical consequences (e.g. death or disability) and possible social consequences (e.g. effect of condition on work or family life). The coping appraisal is the result of response efficacy (belief that the recommended behaviour will reduce the threat), self-efficacy (belief in own ability to perform the recommended behaviour) and response costs (e.g. time, effort, inconvenience, social costs) associated with executing the recommended behaviour. The outcome of these appraisals influences an individual's protection motivation that leads to either adopting the desired behaviour or not. That is, the motivation to act is dependent on the individual's expectation that the recommended action can reduce the likelihood of harm. Results from a meta-analysis of 27 studies from several health contexts suggests that the association between coping variables (efficacy and costs) and measures of persuasion (e.g. behavioural intentions, behaviour) were stronger than the associations between threat variables (severity and vulnerability) and measures of persuasion (Milne *et al.*, 2000).

Unlike the health belief model, this theory is able to explain rational and irrational decision making processes. For instance, when response efficacy and self-efficacy are high and vulnerability and severity factors are high, the individual will perceive that they can do something to avert the threat. However, when response efficacy and self-efficacy are low and vulnerability and severity factors are high, an individual might feel helpless and unable to avert the threat and/or perform the recommended behaviour, leading to maladaptive responses. This is one reason why fear appeals do not always work.

HORNİK & YANOVITSKY'S THEORY OF SOCIAL MARKETING

Hornik & Yanovitsky's Theory of Social Marketing (2003) postulates that effective social marketing campaigns lead to health behaviour change through a series of linear steps. Change in health behaviours begins with the acquisition of knowledge and learning about the costs and benefits of performing the desired behaviour, followed by a change in beliefs, and then an intention to act. Positive or negative behavioural intentions are eventually translated into actual behaviour. One of the

interesting complexities of this theory is that behaviour change might be impacted directly by the campaign or indirectly by the diffusion of campaign messages through institutional pathways (e.g. support from legislation branches of the government, law enforcement) or social networks (e.g. personal interaction among family or friends). The theory also posits that the more an individual is exposed to a message, the more likely they are to alter their beliefs and subsequent health behaviour. This approach is mechanistic in nature and assumes that the individual will have no choice but to change beliefs and subsequent behaviour (Gross, 2009).

There are several major challenges to this theory. Linear models, such as this one, assume that individuals are passive receivers of information, have the freedom to make choices and will make choices based on the information provided. Audiences can be quite selective and may have different underlying behavioural motivations therefore the desired behaviour change does not necessarily follow after a message is imposed (Elliot, 1989). Another challenge is that behavioural change is viewed primarily as uni-dimensional and caused by an intervention when indeed it is reliant upon individual motivations and many structural variables (Gross, 2009). Finally, this model assumes institutional and social pathways only impact on knowledge diffusion, and are not important to each step of the model. In reality, there are multiple individual factors and barriers that occur along the path from knowledge diffusion to behaviour change and these often interact.

3.3.2 Theories explaining social persuasion

To understand how to persuade an individual to adopt new attitudes or behaviours, specific theories of persuasion or motivation to change need to be examined. The following theories view behavioural change as the outcome of information processing.

ELABORATION-LIKELIHOOD MODEL

The Elaboration-Likelihood Model (Petty & Cacioppo, 1986) views persuasion as a means of forming or changing attitudes and there are two routes of persuasion by which attitude change may occur: central and peripheral. Motivation and ability are required for high elaboration in cognitive processing, that is, when individuals actively think about the campaign message, judge and evaluate it, and link the content to information already stored in their memory. Individuals might be motivated to process a message if it is perceived as relevant or they feel a high level of personal responsibility. Factors influencing an individual's ability to process the message include prior knowledge of the message, comprehensibility of the message and whether there are any other distractions. Assuming that both motivation and ability are sufficient, the right informational cues need to be present. Persuasion can also occur with low elaboration, but rather than going through the elaborate assessment via the central processing route, the individual follows the peripheral route where simple decision rules are derived by the situation at hand. For example, attitudes might change based on the attractiveness or expertise of the message presenter.

ASSOCIATIVE-PROPOSITIONAL EVALUATION MODEL

A more recent model is the Associative-Propositional Evaluation Model (APE; Gawronski & Bodenhausen, 2006). The APE is a dual attitude model whereby evaluations of attitude objects are based on the type of attitude: implicit or explicit. Implicit attitudes are based on associative process such that evaluations are automatic, affective reactions to an attitude object (e.g. salt is automatically associated with pepper). Such evaluations are not intentional and require limited cognitive resources. Individuals report explicit attitudes and they are activated more deliberately, requiring more cognitive effort. In contrast to implicit attitudes, explicit attitudes derive from evaluative judgements. The model suggests that explicit attitudes are able better to predict behaviours that are under volitional control.

Attitude change can proceed differently depending on which type of attitude is to be changed. Implicit attitudes require changes to associative evaluations, which may take place through incremental changes or by changes in the pattern of activation. Explicit attitude change can occur by changing associative evaluations that will cause subsequent changes to evaluative judgements, or making changes to the information used in the evaluation (i.e. new beliefs/knowledge or additional consideration of existing beliefs/knowledge).

3.3.3 Theories explaining the process of behaviour change

The following theories explain the process of behaviour change so that campaigns might be designed to support the desired behaviour or influence the behaviour change process. They also provide insight as to why the desired behaviour has not occurred.

THEORY OF SELF-REGULATION

The Theory of Self-Regulation (Carver & Scheier, 1981) describes the way in which individuals change their behaviour based on the concept of negative feedback. Individuals compare their current situation with a goal (attainment or avoidance) or reference situation. For example, the goal might be to wear protective gear when working with dangerous chemicals. If a discrepancy is observed (i.e. the goal has not been achieved), action is taken to minimise the discrepancy.

Goal disengagement may also occur when an individual decides to abandon a goal or exchange it for a more realistic one. This is not necessarily negative but may be positive or adaptive. For example, a worker may find protective gear cumbersome so they only wear it when dealing with chemicals they perceive as high risk. It is possible that the effects of a goal disengagement message in one area (e.g. the workplace) might have a spill over effect into other areas (e.g. protective gear is worn when working with dangerous chemicals at home). The challenge for campaign developers is deciding whether to focus on goal attainment or goal disengagement. The decision might be determined by the aim of the campaign and the target audience.

THE TRANSTHEORETICAL MODEL OF CHANGE

The Transtheoretical Model of Change, developed by Prochaska and DiClemente (1983), has received much attention in the area of behaviour change and health promotion such as smoking cessation (Spencer *et al.*, 2002), promoting physical activity (De Bourdeaudhuij *et al.*, 2004; Reger *et al.*, 2002) and encouraging commuters to cycle (Gatersleben, 2003). A major contribution of the model is that it considers the readiness of the individual to change their behaviour. The model outlines six stages of change through which an individual must progress before a new behaviour can be established and maintained. Individuals do not necessarily follow a linear pattern through the stages but may move both forwards and backwards.

The stages of the model are:

- Pre-contemplation – No consideration or intention to change behaviour and change may be resisted.
- Contemplation – Awareness of the problem behaviour but costs and benefits associated with the behaviour are seen as equal.
- Preparation – The intention to take action is high and some reductions in problem behaviour may have occurred.
- Action – Some change in behaviour has occurred but much effort is required. This is the most unstable stage and the risk of returning to the old behaviour is high.

- Maintenance – The new behaviour has started to become habitual but still a chance of relapse when emotionally distressed. The new behaviour needs to be rewarding.
- Termination – The new behaviour is established and there is no longer a temptation to return to the old behaviour.

There are some issues associated with specific stages that have implications for mass media campaigns. In the pre-contemplation stage, the individual is not aware that they are engaging in a problem behaviour therefore merely informing a person about the disadvantages of their behaviour will not have the desired effect. Message evaluation is highly dependent on the receiver's own underlying beliefs. People in this stage are also very hard to reach, as they do not actively seek information. However, some health research has reported positive results by proactively seeking and contacting pre-contemplators (Reed, 2001).

To progress to the contemplation stage, individuals need to become aware of the problem behaviour and what they need to do. This might be achieved by highlighting the conflict between their needs and those of the general public, resulting in cognitive dissonance, dissatisfaction and a desire to change. Individuals in the contemplation stage are open to new information and want to learn more. Progression to the next stage might occur if the message is seen as functionally relevant or there is a push from others in the community (DeBono, 1987).

This is one of the more widely used psychological theories at present. One of the strengths of the theory is that it recognises that characteristics implicit to each population are pertinent for creating or resisting change. Findings from the evaluation of the HSE 'Watch your Step' OHSW mass media campaign in the UK are consistent with this theory (Nobel *et al.*, 2007). The campaign had more impact on employers and workers already interested in taking action. Knowing at which stage the target audience is situated can be useful in the development of OHSW campaigns.

3.4 Campaign design and development

Careful planning is required to develop an effective mass media campaign, as there are many components that need to be brought together to form a comprehensive strategy. The previous section has highlighted how psychological theories can guide this process. Some of the factors that need to be considered are the campaign objectives, the target audience, the target behaviour, the message, types of appeals, channels for message delivery and levels of exposure.

The author recently reviewed road safety and public health literature to determine best practice for road safety mass media campaign development and evaluation. Given the common goal of promoting safe behaviours, many of the principles associated with road safety mass media campaign development also apply to occupational safety mass media campaign development. For the purpose of brevity, pertinent findings from a previous report concerning the key elements in designing persuasive health based mass media campaigns are summarised below. For a more detailed discussion the reader is referred to the full report (see Wundersitz *et al.*, 2009). These general points are followed by specific insights resulting from a process review of an OHSW campaign.

- Use systematic data driven processes to identify the target behaviour and the target audience.
- Segment the target audience then tailor the message to the motivation and needs of these subgroups. There is increasing evidence that one style of message may work for one audience but not another.
- Use a psychological theory as a conceptual base for the campaign; theoretically guided campaigns have a greater chance of success.

- Clearly define the campaign objectives and select appropriate variables that can measure whether these objectives were achieved.
- Integrate mass media with other activities such as enforcement, legislation and education.

In addition to these points, it is important in the OHSW context for mass media campaigns to target employers as well as employees. This concept is linked to the philosophy of a system wide approach to safety in the workplace. Culvenor (1997) advocates that rather than blaming the system users (i.e. workers) for their inability to avoid hazards, campaigns should focus on the management of hazards. There is some evidence of the benefits of this more holistic approach to injury prevention in the OHSW literature. A campaign focusing on back pain in Victoria targeted different groups such as health professionals, employers and employees reported changes in work-related outcomes (Buchbinder *et al.*, 2008). In contrast, a similar mass media campaign undertaken in Alberta gave only generic advice about back pain management and did not provide any messages aimed at employers (see Section 3.5.8 for a detailed discussion).

LESSONS FROM A PROCESS REVIEW

The Health and Safety Executive (HSE) in the United Kingdom conducted a comprehensive process evaluation of a national campaign 'Watch your step' promoting awareness of slips and trips in the workplace (Nobel *et al.*, 2007). The campaign involved mass media, education and inspection activities. The review reached several salient conclusions regarding factors affecting campaign development and the impact of the campaign that are summarised here:

- Campaign designers need to remember how the communications process works and that it takes time. Individuals need to be taken along a path whereby awareness is raised about an issue, interest in the issue is raised and a desire to take action emerges. For example, it has taken many years to alter attitudes and behaviours towards drink driving and smoking.
- Campaigns need to be planned in advance to optimise preparations and to form part of a coherent strategy.
- Different campaigns should be interconnected to form part of a long-term program to help sustain any changes. Activities need to be maintained after the main campaign and resourced.
- Alternative approaches to mass media communications such as target audience segmentation and social marketing hold some promise.
- Campaigns need a clear "call to action" suggesting a simple effective safety measure that can easily be performed.
- The mix of campaign activities was an important delivery mechanism with active engagement such as face-to face contact through training events, inspections and informal networking were found to be most effective for prompting employers and employees to take action. While these activities might be effective they have limited reach. Mass media advertising has a role in reaching large numbers of people and to potentially deliver a large volume of change.
- For individual employers, inspection or advertising run in isolation was less effective than when combined. Attitude and behaviour change did not appear to result from exposure to advertising alone.
- An important determinant of the degree of change was the extent of an individual's general predisposition towards health and safety. In this campaign, mass media did not assist in

focusing on the specific safety issue unless individuals were already interested in taking action. Mass media can be useful to those who are already converted, and who are looking for an opportunity to make changes within their organisation.

- Mass media advertising enhanced other related activities by emphasising the importance that HSE places on slips and trips in the workplace and directing employers and employees to resources.
- Given that the main value of mass media appeared to be in supporting and adding impetus to other activities, the same level of impact might be achieved through smaller, more targeted advertising campaigns.
- Mass media communications might have more impact if the wider climate is more positive (i.e. greater numbers of employers engaged in health and safety, stronger informal networks).

Some additional comments are derived from the HSE 'Backs 2005!' campaign (Health & Safety Executive, 2006).

- Single topics for campaigns are more effective in promoting sustained action and they enable employers to develop expertise and better understanding of key risk areas. Multiple-topic campaigns promote short-term fixes rather than sustainable solutions. Concentrate on larger single topic initiatives.
- When focusing on public sector employers and employees consideration should be given to making media campaigns more targeted (those interviewed felt the campaign could be made more relevant to them). However one of the benefits of mass media campaigns is that they can reach a wider audience; awareness events and stakeholder engagement could be more targeted.
- Repeated exposure to the media campaign reinforces the campaign messages. Using different forms of media helps strengthen the messages.
- Increase the use of interventions combining public communication with inspection, publicity, and stakeholder engagement.

3.4.1 The message

The key to effective social marketing is devising a message that captures the attention of the target audience and leads them to adopt the desired safe behaviour. Therefore, a message needs to be credible, possible to achieve and honest, used repeatedly, easy to understand, persuasive, relevant and appealing (Delhomme *et al.*, 2009). A message is more likely to be persuasive if the individual feels motivated to process it, and the cognitive processing will be more effective if the message is comprehensible. The following sections consider the framing of the argument and different types of appeals.

FRAMING

A message can be constructed in a way that the target audience evaluates the information regarding risk as either a gain (benefit) or a loss (cost). The main argument of the message might focus on the advantages of adopting a safe behaviour (positive, gain framing) or the negative consequences of not adopting it (negative, loss framing) (Delhomme *et al.*, 2009). For instance, in a campaign promoting the wearing of safety equipment, a positively framed message could be 'Wear protective clothing, your

life is important' while a negatively framed argument might be 'If you lose your safety glasses, you could lose your eye'. Threat appeals are an extreme version of loss framing.

The type of framing can influence the effectiveness of the message in terms of how the audience receives the message and assesses the problem. Findings from studies on the effects of message framing are far from unanimous although meta-analyses on the effects of message framing have reported that gain framed messages are more important when the goal is prevention (O'Keefe & Jensen, 2006) while loss framed messages are more effective in promoting early detection (i.e. breast cancer screening) (Cox & Cox, 2001). While these findings are suggestive that gain-framed messages would be most appropriate for OHSW prevention campaigns very little research has specifically examined the effects of message framing on worker behaviour.

DIFFERENT TYPES OF APPEALS

Mass media campaigns can have a rational or an emotional approach or a combination of both approaches. Rational appeals provide objective information about the issue and emphasise logic and cognitive processing (e.g., state the benefits of adopting a safe behaviour). A typical rational appeal might consist of messages containing statistics and these types of appeals can be attractive because they are assumed to be credible.

Emotional appeals emphasise feelings and images and can be positive (e.g. humour), negative (e.g. fear) or a combination of both. The Worksafe Victoria 'Homecomings' media campaign is a good example of an emotional appeal. Donovan *et al.* (1995) argue that it is not the type of appeal that is important, but what emotion is relevant to the motivation underlying the decision making for a specific issue. There is emerging evidence that messages in the media evoking emotion can directly influence health behaviours (Dillard & Nabi, 2006; Dunlop *et al.*, 2010) but there is still a need to obtain a better understanding of the relationship between the extent to which an emotion is evoked and the strength of subsequent attitudinal and behavioural responses.

Messages can also be presented within a narrative framework. Narrative appeals or case studies typically use anecdotes or stories and are thought to be advantageous because the 'story' is more involving to readers. Narratives or 'real life case stories' are commonly used in OHSW campaigns. There is some evidence within the health literature that narrative-based messages are more persuasive than statistics-based messages (e.g. Cox & Cox, 2001) while other studies have found no difference between the two message types (Dunlop *et al.*, 2010; Morgan *et al.*, 2002). However the effect might be moderated by the target audience involvement and predisposition to the message. One study reported that those with pre-existing values that were compatible with the position advocated by alcohol education messages found statistics-based messages more persuasive while those resistant to the message found narrative-based messages more convincing (Slater & Rouner, 1996). A campaign promoting agricultural safety in Kentucky, US reported that a narrative-based message and a fear appeal message were each rated more favourably by members of farming communities than an information only message (Morgan *et al.*, 2002).

3.4.2 Threat appeals

Threat appeals have been widely used in health-related advertising in Australia. For example, threat appeals were used in television advertising to promote AIDS awareness in the 1980s and to deter drivers from speeding and drink driving. Threat appeals aim to provoke fear, anxiety or apprehension in the target audience. There has been much interest in the use of threat appeals, but after many years of research the effects are far from clear. The main steps in the threat appeal technique are:

1. Attract and hold the target's attention
2. Generate the fear or anxiety
3. Suggest a safe behaviour to cope with the threat
4. Increase the target's confidence in their ability to successfully and easily perform the safe behaviour.

While step one is usually achieved, the steps relating to efficacy (the third and fourth) are often forgotten by campaign developers (Delhomme et al., 2009).

There are several theoretical models that offer an explanation as to how fear appeals work but the Extended Parallel Process Model (EPPM) (Witte, 1992) is the most conventional and combines two previous models (i.e. The Parallel Response Model, Protection Motivation Theory). The EPPM suggests that a threat (severity and susceptibility) motivates a response and efficacy (response efficacy and self-efficacy) determines the nature of that response. When both the perceived threat and efficacy are high, danger control processes are initiated, resulting in adaptive behaviour (self-protective attitudes, intentions, behaviours). Conversely, when perceived threat is high but perceived efficacy is low, fear control processes commence, resulting in maladaptive behaviour (defensive avoidance, denial, reactance).

Lavack et al. (2008a) conducted a content analysis of safety communications materials aimed at young workers in North America. They found that over half of all social marketing communication materials for workplace safety involved fear appeals. Of these, less than one third included the four variables comprising the Extended Parallel Process Model that are essential for an effective fear campaign: self-efficacy, response efficacy, severity and susceptibility.

THE THREAT

Researchers argue that the severity of the threat alone may not motivate behaviour but that the relevance of, and susceptibility or vulnerability to the threat is important (Stephenson & Witte, 2001). Several studies from the public health arena support this argument (de Hoog *et al.*, 2005; Peckmann *et al.*, 2003). De Hoog et al. (2005) demonstrated that evoked fear was not the most important factor in threat appeals, but the extent to which a person believes they are susceptible to the health risk (in this case RSI). The perceived threat rather than evoked fear motivated individuals to form the intention to engage in the recommended behaviour.

With respect to the relevance of the threat, not all types of threat (i.e. physical, social, psychological, financial) might be considered relevant to the target audience. For instance, when considering the challenges in communicating OHSW messages to workers aged under 30 years, Cable (2005) writes about problems associated with getting younger workers to comply and wear hearing protection "With younger workers, they just don't see that far into the future and don't believe it (hearing loss) can happen to them". "The future is not a reality". A study of cigarette smokers reported that young people

appeared to be more affected than older people by all types of threats including threats to their freedom or mobility and threats of pain (Henley & Donovan, 2003).

When using fear appeals it is very important that the campaigns are designed so that the appropriate target group receives the message as targeting the wrong group can potentially have negative consequences. A study investigating the impact of an experimental threat manipulation for mammography screening in regional Australia found that high-threat messages resulted in stronger negative emotional reactions (e.g. anxiety, disgust, horror, shock) and greater perceived susceptibility among younger women who were not the target group for the screening (Jones & Owen, 2006).

EFFICACY

A strong efficacy component is important in fear appeals. Various studies have demonstrated that fear arousing messages can be persuasive when the audience have high self-efficacy (belief that self is capable of averting the threat) and perceive high response efficacy (belief that coping strategy is able to avert the threat) but work less well or not at all when the audience has low self-efficacy (e.g. Witte & Allen, 2000). Findings from an online experiment demonstrated that the inclusion of three of the EPPM variables self-efficacy, susceptibility, and severity together increased the appeal of fear based workplace safety posters among young males aged 18 to 24 years (Lavack et al., 2008a). The manipulation was unsuccessful for response efficacy and so focus groups were conducted to explore the issue further. Discussions with young male workers revealed that safe behaviours recommended in the posters were viewed as difficult to perform in reality given environmental constraints such as management wanting them to work faster or co-workers viewing them as 'wimps'. The authors suggest that environmental elements (i.e. 'environmental efficacy') precluding an individual from performing a safe behaviour should also be considered when response efficacy is communicated to maximise campaign persuasiveness.

Lewis et al. (2010) argued that response efficacy is more important, in a practical sense, than self-efficacy for influencing message effectiveness. They suggested that response efficacy can be developed and placed within a message, having a direct influence on the effectiveness of a message while self-efficacy is largely dependent on the individual and is rarely amenable after a single exposure to a message in a campaign. More specifically, Lewis et al. found that response efficacy was contingent on the type of emotional appeal: for positive emotion-based appeals, it increased message acceptance and reduced message rejection while for negative fear-based appeals, it minimised message rejection. These findings suggest response efficacy improves the persuasiveness of emotion-based messages in general, not just fear based messages.

Recent experimental studies from road safety indicate gender might be an important factor that influences the way in which individuals process the relevance of messages using fear appeals (Goldenbeld et al., 2008; Lewis et al., 2008). The threat of physical harm does not appear to be effective for targeting young male drivers, one of the most relevant target groups for which fear appeals were developed (Tay & Ozanne, 2002). There does not appear to be a generally accepted reason for the relevance of gender at present and it is unknown whether these findings are also relevant in the OHSW context.

THE IMPORTANCE OF THREAT REDUCTION

The theory behind threat appeals suggests that the effectiveness of campaigns is contingent on the presentation of a course of action to reduce the threat, such as a safe behaviour. For example, the HSE 'Shattered Lives' campaign designed to reduce slips, trips and falls in the workplace features posters that graphically depict a work injury with the tag line "Simple mistakes can shatter lives...". This is followed by the line "...your actions could help stop them from happening" and further industry

specific instructions for prevention are provided (see: <http://www.hse.gov.uk/shatteredlives/resources.htm>). Jessop et al's work (2008), grounded in Terror Management Theory, suggests that the presentation of recommendations to reduce a threat may "prime the component of an individual's cultural world view that values such responsible behaviour and thus direct attention toward the goal of behaving in a responsible manner." (p.963)

A number of studies have found that exposure to high fear appeals without recommendations to reduce the threat can elicit maladaptive or defective coping responses (e.g., Schoenbachler & Whittler, 1996; Witte *et al.*, 1998). They are maladaptive in that they do not try to control or remove the threat implied by the fear message, but instead attempt to eliminate the unpleasant feelings of fear that result. Such responses might include defensively avoiding or ignoring the message (e.g. switching channels), failing to process the threatening part of the message, and denying the personal relevance of the message. Fear appeals may even promote reaction against a message such that individuals view the message as a challenge and increase the undesired behaviour. Emerging research examining binge drinking (Jessop & Wade, 2008) and risky driving (Jessop et al., 2008) suggests that fear appeals emphasising mortality related health risks can increase health detrimental behaviours for individuals who perceive the targeted behaviour to be beneficial to self-esteem. The implications for OHSW are not known at present.

Algie & Rossiter (2010) conducted a noteworthy study based on the fear patterning proposition that suggests it is not the level of fear that alters attitudes or behaviour but the sequence of evoking fear followed by a reduction in fear or 'relief'. The study tracked the moment-to-moment responses of young drivers to 12 anti-speeding road safety advertisements with different fear patterns: fear only, fear-relief and fear-partial relief. An interesting finding was that while some advertisements were designed to follow the fear-relief pattern, some respondents still felt fearful at the end of the advertisement. These individuals were in the minority but the experiment highlights the variation in individual responses to threat appeals and why such appeals must be designed with great sensitivity.

Graphic fear-based appeals are increasingly being used in OHSW campaigns targeting young worker safety in Australia and have recently been used in North America. The Workers Compensation Board in Nova Scotia (2005) and British Columbia (2006) used graphic hard-hitting images on websites of severed body parts with accompanying price tags to gain young workers attention (Lavack et al., 2008b). The message emphasised that body parts were more important than hourly wages. While critics in Canada acknowledge that these campaigns capture young workers attention, they warn that "Devoid of any personal connection, such images separate young workers from the real and long-term consequences of workplace tragedies" (Beharie, 2005). Despite the increased interest in these appeals there is very little, if any, published literature evaluating these types of campaigns.

If a threat is perceived as exaggerated, over the top, or it does not reflect the personal beliefs and experiences of the target group, the campaign and even the communicator may lack credibility. For example, focus groups examining young male worker responses to OHSW posters (see Lavack et al., 2008a) found that some participants thought the behaviours shown in the posters were not depicted accurately, consequently reducing the credibility of the campaigns.

Another consideration is that fear appeals can "expose a person against his or her will to harmful or seriously offensive images" (Hyman & Tansey, 1990, p.110) and may create unnecessary anxiety amongst viewers. It could be considered unethical to expose individuals to levels of fear that are psychologically uncomfortable (see Hastings et al., 2004).

METHODOLOGICAL LIMITATIONS

The majority of fear appeal studies have been conducted in laboratory or experimental settings (Hastings et al., 2004; Witte and Allen, 2000). Hastings et al. (2004) observe that it is these types of studies that have suggested fear appeals can work but such studies have limitations including forced exposure, short-term measurement of effects and an over-dependence on university student samples. There are few real-world evaluations of fear appeals, and their findings usually suggest that fear has a weaker effect (it raises awareness or changes attitudes rather than changes the targeted behaviour) and, sometimes, unintended detrimental effects (Hastings et al. 2004). More research conducted in naturalistic settings is needed to overcome these limitations. Follow up measures, though difficult, could determine whether the effectiveness of different appeals varies over time.

Another issue with empirical studies designed to evoke emotions, is that they often do not check that the advertisement message is indeed evoking the intended emotion. This is important because different discrete emotions can have different persuasive effects; some inhibit while other facilitate persuasion. If the anticipated emotion is not successfully evoked, then the study is not actually measuring the intended relationship. Rather than merely assuming the intended emotion was evoked, changes in the level of the emotion should be measured or manipulation checks of the emotion should be undertaken (Lewis *et al.*, 2009). However, there are problems with self-report measures of individual emotional responses - for example, possible individual differences in the interpretation of words used to describe emotions (Morris *et al.*, 2002).

SUMMARY

To summarise, fear appeals can have an impact but only when specific conditions are satisfied. The arousal of fear alone is not enough to sufficiently motivate behaviour. The fear appeal must describe a threat (emphasising the severity of the threat and the susceptibility of the audience), the threat should be personally relevant, and recommendations must be provided for reducing or avoiding the threat (e.g., a safe behaviour). The recommendations must also satisfy the following points (from Donovan *et al.*, 1995):

- Be realistic and credible (i.e., possible to carry out).
- Suggest a specific plan for avoiding the threat (i.e., coping strategy).
- Be perceived as effective and useful to avert the threat (i.e., high response efficacy).
- Allow the target to believe that they are capable of carrying out the suggested actions (i.e., high self-efficacy).

Without such recommendations the campaign may be counterproductive as individuals may believe that they are unable to effectively avert the threat, resulting in defensive and maladaptive responses to the campaign. On this basis, fear appeals should be used with caution and OHSW campaign developers should consider using different appeals.

3.4.3 Appeals using positive emotions

In contrast to negative emotional or threatening messages that aim to evoke fear, anger, or guilt, positive emotional messages aim to evoke humour, excitement, hope or 'good' feelings. Some political advertising research that suggests positive emotional (or reward) appeals may work better with people who are low on authoritarianism (Wan *et al.*, 2000). This type of appeal is becoming more popular in OHSW in Australia with campaigns such as 'Look after your workmates' from Safework SA and 'Homecomings' from Worksafe Victoria. Generally, there is a lack of knowledge about factors that

influence the effectiveness of such appeals, relative to the abundance of literature concentrating on fear appeals (Wundersitz et al., 2009).

Lavack et al. (2006) conducted a content analysis of OHSW communications materials focusing on young male workers in Canada and the United States. The authors found that most of the messages targeting young workers concentrated on the negative consequences of not working safely, a 'downstream' approach. The study suggests future research should investigate how campaigns targeting youth can incorporate a more positive or 'upstream' approach that promotes and rewards safe practices in the workplace. Forck (2003) advocates that to improve worker safety "...we must turn away from the catastrophic and from dictating safety, instead selling the positive benefits of safe work."

Humour is a positive emotion that has been used occasionally in OHSW messages, but there is very limited research investigating its effect. Some research has explored the effect of humour in product or commercial advertising and to a small extent in public health campaigns, but it is not known whether these findings can be applied directly to OHSW. The Health Education Authority for England's anti-smoking mass media campaign is an example of an effective campaign using black humour (McVey & Stapleton, 2000). Comedian and actor John Cleese was featured in advertisements at various stages of quitting cigarette smoking, providing risk messages, encouraging quitting and imparting tips on how to prevent relapses. The messages aimed to engage the target audiences' curiosity, highlight the dangers of smoking, show the 'ridiculousness' of smoking and provide quitting messages. An evaluation found the campaign was effective in promoting a reduction in smoking prevalence, but this only became evident after both phases of the campaign had been completed (after 18 months) (McVey & Stapleton, 2000). The greatest impact was observed when the television campaign was screened in conjunction with local tobacco control activities. Of interest, there was no evidence of an effect of varying the weight of television advertisements during the first phase of the campaign.

The recent finding suggesting response efficacy improves the persuasiveness of positive emotion-based messages (based on emotions of humour and pride), not just fear based messages has some important implications (Lewis et al., 2010). It suggests that positive emotional appeals may also need to incorporate messages that provide effective and useful strategies for the target audience. The success of the English anti-smoking campaign (incorporated tips on how to quit smoking and prevent relapses) provides support for this notion (McVey & Stapleton, 2000). Research investigating factors affecting positive emotional appeals are still in their infancy but this is an important area for future research given the interest in emotional campaigns within OHSW in Australia.

Other evidence from public health suggests that humorous appeals are more persuasive than non-humorous appeals for males when promoting AIDS awareness (Struckman-Johnson *et al.*, 1994) and sunscreen use (Conway & Dubé, 2002). Recent research into speeding behaviour suggests that positive emotional appeals using humour are more effective for males than females, and vice versa for fear-based negative emotional appeals (Lewis et al., 2008). It is unknown whether these findings translate to the OHSW context. Evidence from the Industry review (see Section 2.3.2) is suggestive that the positive emotional 'Homecomings' campaign did not resonate with young males.

Generally, little is known about the effects of positive (and negative) appeals over time. To explore this issue further, a recent experimental study exposed participants to road safety advertisements with different appeals and found greater persuasiveness of negative (fear) appeals immediately after exposure but greater improvement for positive humorous appeals over time (up to a month) (Lewis et al., 2008). Findings for the English anti-smoking mass media campaign using humour also indicated that effects on behaviour take time (McVey & Stapleton, 2000). Changes in smoking cessation did not occur after 6 months, only after the completion of the 18-month campaign. While these findings are

suggestive that positive appeals may become more persuasive over time, it is not known to what extent these findings apply directly to OHSW campaigns. Further research in the OHSW context is highly recommended.

3.4.4 Message delivery

The number of media channels of communication available continues to expand. In 2009, there were 65 licensed broadcasters in South Australia, many with 2 or 3 associated TV channels or radio stations that are free to air (Australian Communications and Media Authority, 2009). On pay TV, there are approximately 130 stations within Australia. While there are many newspapers Australian wide, circulation figures are likely to be declining with the increase in online access and activities. There are currently over 9.6 million active Internet subscribers in Australia and this level is expected to increase (ABS, 2010).

The growth in media choices has an impact on the reach of mass media campaigns as it is unlikely that one single TV program or station will be watched by a large number of viewers at any one time. Given the wide media choice, decisions on what media to use should be made based on target audience preferences and the characteristics of the media itself such as reach and selectiveness, information capacity, lifespan, ability to gain attention and costs. A summary of the advantages and disadvantages of audiovisual, printed, outdoor, interpersonal and electronic media have been compiled by Delhomme et al. (2009) and are provided in Appendix A.

OHSW advertising needs to be close to the point of impulse. Posters displayed in workplaces provide an ideal opportunity to deliver workplace messages at the time when the target behaviour might be expected. Intuitively, radio advertisements should be most effective when placed at times when people are commuting to work or at times when employers and employees of the targeted industries would be expected to be at work. Ideally outdoor advertisements should be placed as closely as possible to the targeted workplaces.

Research indicates campaigns using multiple forms of media can be as effective in communication as television only campaigns and print only campaigns (Dijkstra *et al.*, 2005). In addition, different types of media can have synergistic affects, for example, newspapers are used to prime people to watch TV campaigns, TV campaigns might promote visiting a website and websites can create awareness and interest in topics (i.e. through interactive games) primarily advertised on TV.

Information is increasingly being forwarded through social media networks on the Internet whereby people will refer friends and family to websites of interest through social networking sites such as Facebook, Twitter and My Space. A recent report by Neilson stated that 84% of Australian Internet users share content through their social sharing services (Moses, 2009). These person-centred applications are useful for getting out short concise pieces of information such as the announcement of events, notification of new policies or legislation or details about serious work-related incidents (Schneider & Check, 2010). They also allow for the creation of groups of people with similar interests in specific OHSW topics. Indeed, one of the biggest advantages of social media is the two-way flow of information. Social networking is most popular among younger people therefore they should be considered not only a target audience but also a medium.

The media preferences of different target audiences should also be considered and a good case study is young workers. Cable (2005) discusses the challenges of communicating OHSW messages to young workers and makes the following points based on interviews with market research companies.

- The youth of today are information people with a right here, right now orientation. Safety information needs to be fed to younger people very quickly in small segments as this is how they are used to getting information.
- Do not expect the same idea to continue to engage the interest of young workers for a long time. A US marketing company targeting young male construction workers placed innovative 'sexy safety stuffers', eye-catching flyers displaying safety messages, with workers pay. The messages were continually altered to maintain the targets attention.
- Young workers are not print orientated. If print materials are used, they must have dynamic, high impact graphics with short messages (1-2 sentences) because they have shorter attention spans for reading print. The graphic needs to speak for itself.

Some effective ways to communicate with young workers have been identified within the research literature:

- Peer-to-peer communication and peer involvement in campaign development (i.e. collaborating within their own age group) has received a good response from young people in road safety (e.g. Maisey & Jones, 2006) and in OHSW (van den Broek, 2004). For instance, high school students in British Columbia actively participated in videoed drama plays in which they had to come up with their own ways to spread OHSW messages to other young people (van den Broek, 2004). The play addressed the theme of what can happen when young workers don't ask for help. There were no measurable outcomes to assess the effectiveness of this project.
- There is some suggestion that incorporating personal real life stories of people impacted by workplace injuries connects with young workers. A Canadian media campaign targeting young worker attitudes incorporated this strategy in radio advertisements and posters in subways. Market research suggested the campaign raised awareness among youth and employers but it is unknown whether this translated into any real changes in attitudes (Tomlinson, 2002). Linker et al. (2005) comment that young people repeatedly state that they want to see "realistic photographs of young people in authentic situations".
- The Internet is an extremely popular communication tool to reach young people with OHSW safety messages because this medium permits greater personal control over the gathering and absorption of information and responses to searches are almost instantaneous (Peattie, 2003). It is increasingly being used, partly because youth are becoming harder to reach using traditional media. Young people now watch less television than 18-49 year olds but spend more time online than any other demographic group (Peattie, 2003). While the Internet is an engaging interactive medium the main problem is getting the target audience to visit a specific website (Dijkstra et al., 2005). This was found to be a particular problem for a health mass media campaign targeting older adults (Berry *et al.*, 2009) and may also pose a problem for lower socio-economic groups who do not have easy access to high speed Internet.

3.4.5 Levels of exposure

There is a minimum number of times or frequency that an audience is exposed to an advertisement to elicit a response. The effective frequency is the optimum number of exposures required to effectively convey the campaign message to the target audience. Responses to the message will decrease above this level so any additional exposure is unlikely to be cost effective.

High levels of exposure to a campaign are encouraged in consumer advertising to keep products 'top of mind' but high levels of exposure in public health advertising could be subject to wear out. Faster wear out in health advertising might be expected because mass media campaigns are promoting issues or behaviours that are well known but largely ignored by the audience in terms of their behaviour (Donovan et al., 1995).

Little is known about how much exposure is necessary for mass media campaigns promoting health behaviours and even less is known for those promoting OHSW issues. Research on this topic is impeded by the lack of detailed information about the media intensity or exposure levels of OHSW campaigns in evaluations (see Section 3.5.4). A recent review of best practice in road safety mass media campaigns reviewed the scant evidence on optimal levels of exposure and reached the following conclusion:

"Industry standards suggest three exposures are needed to achieve minimum effective frequency (i.e. convey a campaign message) although there are suggestions that a single exposure might be enough in some situations. In the absence of any new knowledge from road safety campaigns, it is recommended that industry standards not be exceeded." (p.40, Wundersitz et al., 2009)

The reader is referred to the full report for a detailed discussion. In the absence of any further research, it is recommended that the industry standard of three exposures should be adopted.

3.5 Evaluations of OHSW mass media campaigns

This section provides an overview of OHSW mass media campaigns that were subject to an evaluation to determine their effectiveness and the evaluation was published and made available to the public. Therefore, these evaluations can not be viewed as representative of all OHSW mass media campaigns, only those that match the sampling criteria. Of the 45 OHSW mass media related publications identified in the international literature review, 10 were evaluations of campaigns conducted in various countries. The campaign evaluations were of varying quality. Campaign effectiveness was predominantly measured by changes in recall or awareness of the message, self-reported attitudes or beliefs, behavioural intentions, and, to a lesser extent, objective behaviour.

A description of each of the evaluated campaigns is summarised in Table 3.1 with the studies listed chronologically for each target behaviour. A number of important observations are made concerning the different design, delivery and evaluation methods used in these 10 published OHSW mass media campaigns.

3.5.1 Country of campaign

The majority of published OHSW mass media campaign evaluations originated from the United Kingdom (n=6). In addition one evaluation was from Australia and one from each of Norway, Canada and Scotland. The over-representation of campaigns from the United Kingdom is likely a reflection of publishing policies and a national approach to OHSW campaigns.

Given that the search was restricted to literature written in English, it was surprising that no evaluations from the United States satisfied the inclusion criteria. Several US campaign evaluations identified in the literature were not included because they relied entirely on unpaid mass media (e.g. Chapman & Taveira, 2003; Morgan et al., 2002). The lack of evaluations from the US might also be a reflection of the different patterns of responsibility for OHSW campaigns. A study of young worker campaigns revealed some marked differences in the way the United States and Canada approach OHSW media campaigns (Lavack *et al.*, 2006). In the United States, campaigns were generally the responsibility of federal government agencies while on the state level, campaigns predominantly focused on the provision of regulatory and enforcement workplace safety information such as worker responsibility and legal rights. In contrast, Canada conducted OHSW campaigns at the provincial level and tended to use social marketing strategies to promote workplace safety.

3.5.2 Target audience and behaviour

Topics covered by the campaigns included back pain (n=5), slips, trips or falls (n=3), asbestos (n=1) and general workplace safety (n=1). In terms of target audiences, four of the campaigns targeted the general population while the remaining six cited more specific target audiences that were primarily industries or sectors that were identified as being at greater risk. Three of the 10 campaigns specifically targeted health professionals and each of these campaigns was concerned with the management of back pain.

3.5.3 Campaign rationale, approach & message

The mass media campaigns were developed on specific topics in response to a number of different factors that were pertinent to the specific jurisdiction and many of the campaigns were the result of multiple factors: major cause of fatalities or injuries (n=5), rising cost of injuries or claims (n=4), education required for new management of injuries (n=4), review of employer OHSW issues revealed certain attitudes (n=1). In one case, the rationale for campaign development was not known.

Few details are provided about the content of mass media advertisements in the evaluations but it appears that most of the campaigns were intent on providing knowledge or were information based. Both rational and emotional approaches were used to promote such messages. For example the HSE campaigns “Height aware” and to a greater extent, ‘Shattered lives’, used emotional persuasion by depicting graphic workplace accidents in posters, the latter with a tag line “Simple mistakes can shatter lives”. In contrast, posters for the Alberta back pain campaign simply depict workers being active (to reduce back pain). The “Watch your step” campaign posters also used a rational approach by stating a fact about injuries caused by slips and trips and providing tips to avoid the problem. Graphics on these posters were very simple. The asbestos campaign from the UK is one of the few campaigns that used fear tactics in an online advertisement. Consistent with best practice, the threat is followed closely by suggested actions to avoid the threat (asbestos).

The campaign messages generally provided information on injury management (n=5) and aimed to increase awareness of risks (n=5). In terms of message delivery, one campaign adopted a humorous animation figure to present back pain management related messages (Werner *et al.*, 2008b). Three campaigns used trusted and well respected identities such as sports personalities, actors and health care professionals to deliver and endorse campaign messages.

Only one campaign mentioned using a theoretical model to assist their campaign and in this case it was used to guide the evaluation rather than serving as a conceptual foundation for the campaign or directing message focus. The Back Pain campaign in Alberta used Hornick and Yanovitsky’s (2003) model of communication campaign influence.

The inclusion of more detailed information about the campaign content, approach and messages in campaign evaluations would greatly assist campaign developers in understanding what works and what does not in OHSW mass media campaigns.

3.5.4 Length and intensity of campaigns

The length of the campaigns varied across the studies ranging from six weeks to six years. It is encouraging that nine of the 10 campaigns were operational for at least one year while four lasted for three years or longer.

While evaluations often listed media schedules with respect to timing, only one evaluation gave any details related to variations in the level of intensity of the campaign (Buchbinder *et al.*, 2008). No attempt was made to link intensity levels with outcome variables. The general lack of information describing the frequency, intensity and coverage of OHSW mass media campaigns needs to be addressed so that there is a better understanding of the relationship between exposure and campaign outcomes.

3.5.5 Campaign media

All campaigns used a combination of different media but contrary to expectations television was not the most common communication medium. Radio (n=10) was the most frequently used medium to deliver campaigns followed by press (n=6), posters (n=6) and leaflets (n=3). These types of media are all much cheaper than television and can be used to target specific industries. For example, the HSE 'Height aware' campaign placed advertisements in industry magazines and the Norwegian 'Active back' campaign displayed posters in clinics.

Television was only used in three campaigns (1 Australian, 1 Norwegian, 1 United Kingdom) and these campaigns were all conducted prior to 2005. In recent years the Internet appears to be used more frequently to deliver advertisements than television with seven campaigns choosing to use this medium. Websites have the ability to provide information in an interactive manner combined with games and films and no other medium can do this. Outdoors advertising on billboards and posters on buses were used in two back pain related campaigns while cinema advertising was used in one predominantly regional back pain campaign in Norway.

Some campaigns also aimed to earn free media publicity, that is, they tried to generate media interest through press releases or public events. The practice is most useful for campaigns with few monetary resources but is also generally an opportunity to promote OHSW issues (see Schneider & Check, 2010 for a discussion of the role of unpaid media in the construction industry). While only two campaigns documented that they received free publicity, it is likely to be under-reported and so it probably occurs much more frequently. Indeed publicity events and launches to promote educational materials were components of several campaigns.

There does not appear to be any clear relationship between either target group and campaign delivery method or campaign content and delivery method.

3.5.6 Accompanying activities

All except one of the mass media campaigns (i.e. back pain campaign in Alberta) was integrated with other activities, and in most cases multiple activities. Of these 9 campaigns, all of them incorporated at least one form of educational initiatives (e.g. information packs, management guidelines, toolkits, seminars) of which three specifically targeted health professionals and another three targeted

stakeholders. The four campaigns that incorporated workplace inspections were all undertaken in the United Kingdom.

It was interesting to observe that most of the campaigns or interventions were designed around a specific issue and that public communication was just one component of a larger strategy. For example, the United Kingdom's 'Backs! 2005' mass media campaign (Health & Safety Executive, 2006), targeting musculoskeletal disorders, was only one part of a wider three year plan incorporating targeted inspections, information dissemination and stakeholder engagement. In contrast, a small number of campaigns focused on undertaking the mass media communications, and other activities were supportive rather than a central element of the intervention.

3.5.7 Evaluation quality and outcomes

Few of the OHSW campaigns were subject to rigorous scientific evaluation. Two studies were cross-sectional surveys, five were uncontrolled before and after evaluations and three were controlled before and after evaluations. The inclusion of a control group is not always feasible, particularly when entire populations are targeted, as is the case in national mass media campaigns (e.g. Asbestos campaign in the United Kingdom). Where possible, control groups should be included when planning local or regional OHSW campaigns.

Five studies reported objective behavioural measures while the other studies focused on indicators of message recall, awareness, attitudes, behavioural intentions or self-reported behaviours. Insensitive outcome measures might incorrectly estimate the effectiveness of a campaign leading to incorrect inferences concerning the campaign impact.

Generally the four evaluations of campaigns targeting back pain were of a higher quality than the other campaigns in terms of adopting a comprehensive evaluation method (three were controlled before and after evaluations) and all evaluations used objective behavioural measures such as changes in the number of back pain claims, costs of medical care, sickness absences, and health service utilisation (for a detailed discussion, see the next section). Campaign evaluations from the HSE in the United Kingdom typically involved before and after telephone surveys or other qualitative research focusing on changes in campaign awareness and attitudes.

Two of the campaigns were conducted by the authority responsible for the campaign therefore they are not truly independent evaluations. Either academic research organisations or market research companies independently evaluated the remaining eight campaigns. Independent evaluations might be more likely to be published in peer-reviewed journals and reports and this might be a reason why the majority of campaigns were independently evaluated in this sample.

It is interesting to note that accessible published information about a single campaign appears to describe either the content of the campaign or the evaluation of the campaign. It is very rare that a published document will contain detailed information about all aspects of the campaign. Phillips and Torquato (2009) made a similar observation in their review of 45 anti-speeding campaigns. Published comprehensive evaluations with a detailed description of the mass media campaign can only benefit OHSW researchers and practitioners.

While the sample size is too small to make any broad generalisations, an interesting observation is that the campaigns with the highest level of campaign awareness (*'Back pain, Don't take it lying down'* – Victoria, *'Asbestos: The hidden killer'*, *'Working backs Scotland'*) were also the campaigns that reported the most positive results in term of changes in attitudes, beliefs and number of injury claims. This observation does not necessarily imply that there is a causal link between the two factors, it merely suggests that a high level of campaign awareness is desirable.

It is evident that OHSW campaigns are adept at integrating mass media communications with other activities such as education initiatives, inspection activities, and stakeholder engagement. There is also some indication that these integrated campaigns sustained over several years are achieving some positive results. It is less clear which specific components of a campaign can be attributed to positive campaign outcomes. For example, in the 'Backs! 2005' campaign from the United Kingdom (Health & Safety Executive, 2006) it is not known what proportion of the reduction in musculoskeletal disorder absences and incidences is attributable to the media campaign, inspection activity or the stakeholder engagement events. Determining the relative cost-effectiveness of each component remains a challenge and should be a priority for future research.

Tracking the longer-term effects of campaigns on attitudes and behaviours is important because these effects might take many years to emerge. It was very rare for OHSW evaluations to examine campaign effects beyond the duration of the campaign or for any sustained period of time after the campaign concluded. This is likely due to methodological difficulties such as separating the effects of the campaign from other factors but also due to limited resources. One exception was the back pain campaign from Australia that continued to monitor effects up to 4 and a half years after the campaign ceased (Buchbinder & Jolley, 2007).

To improve understanding and knowledge of what factors increase the effectiveness of OHSW campaigns, more scientific campaign evaluations using appropriate objective behavioural measures and sound methodological design (i.e. use control groups and before and after measures) are desperately needed. Given the higher quality of the mass media campaigns targeting back pain, these campaigns are discussed in greater detail in the next section.

3.5.8 Case study: Mass media campaigns for back pain

Much can be gained from replicating well-designed campaigns demonstrating effectiveness (Mustard & Bielecky, 2007). A Victorian mass media campaign was the first to show that mass media could successfully be used to reduce the level of illness due to back pain (Buchbinder, 2008). Buoyed by the successful outcomes of the Victorian campaign, several similar back pain campaigns were undertaken in Scotland (2000-2004), Norway (2002-2005) and Canada (2005-2008). While the successive campaigns reported some changes in attitudes and beliefs, they did not report changes in work-related outcomes evident in the original campaign. Some lessons can be learnt from these experiences. Note that all of these campaigns are summarised in Table 3.1.

The Victorian Workcover Authority developed a state wide public health campaign in an effort to shift the general population's attitudes and beliefs about back pain. The main messages conveyed by the campaign were that staying active and exercising is important, disability from back pain can be improved by positive attitudes, and there is a lot you can do to help yourself (Buchbinder, 2008). In campaign advertisements, messages were delivered by trusted and well-known identities. The campaign consisted of predominantly television advertisements aired in prime time supported by radio, outdoor billboards and limited press. 'The Back Book' was widely distributed and guidelines on back management were sent to GP's. Significant resources were invested in the campaign that cost US\$7.6 million.

Evaluation of the campaign showed beliefs about back pain (e.g. causes, ability to cope and treatment of back pain) were more positive in the general population and among GP's in the intervention state (Buchbinder *et al.*, 2001a). The change in beliefs occurred across all demographic groups and irrespective of prior beliefs. Most importantly, the change in beliefs was accompanied by a decline in the number of workers compensation claims for back pain and health care utilisation for the duration of the campaign (Buchbinder *et al.*, 2001b). Follow-up studies found that the improvements in both the

population's and GP's beliefs were sustained up to 4 years after the campaign ended (Buchbinder & Jolley, 2007).

The Scottish campaign, 'Working Backs Scotland' was developed to advise of a change in management of back pain from resting to staying active. The campaign predominantly used radio to convey the messages but was accompanied by other multimedia and an education campaign for health professionals. Information packs were distributed to health professionals through their own professional bodies and by using their own communication channels, ownership of the information was established (Waddell *et al.*, 2007).

One criticism of the Victorian evaluation was that it relied on a claims database so there was no data on actual clinical management or on social or occupational outcomes in the general population (Waddell *et al.*, 2007). In response to this criticism, the evaluation of the Scottish campaign included such measures. Findings from the evaluation indicated that there was a major shift in public attitudes and professional advice but there was no change in work-related outcomes such as sickness absence or social security benefits for back pain (Waddell *et al.*, 2007). The authors suggest that the lack of effect on work-related outcomes could be due to a lack of explicit recommendations regarding work practices in the campaign.

The Norwegian campaign, initiated by the Norwegian Back Pain Network, was a small scale, low budget intervention undertaken in two counties. The mass media campaign targeted the general population in these counties incorporating local television, radio and cinema advertisements and an information pamphlet was mailed out to all households. There were three other components to the intervention in addition to the media campaign including an information campaign directed towards social security officers, an information campaign targeting health care providers and a practical intervention delivered in six workplaces (Werner *et al.*, 2008b).

An evaluation of the campaign reported a small but statistically significant improvement in general beliefs about lower back pain but did not find any related changes in sickness behaviour (Werner *et al.*, 2008b). The level of awareness of the campaign among the general public (39%) in the intervention counties was much lower compared to those reported in the Victorian (86%) and Scottish (60%) campaign. Cavill and Bauman (2004) consider mass media campaign awareness of around 70% a significant factor in campaign success. The use of local radio and television broadcasters (rather than national) was thought to contribute to low public awareness. Although awareness of the campaign was very high among health professionals, there was no improvement in beliefs regarding back pain (Werner *et al.*, 2008a). The authors concluded that mass media campaigns require a larger investment with wider coverage to achieve changes on a similar scale of those reported in Victoria.

The back pain mass media campaign conducted in Alberta, Canada used messages derived from the Victorian campaign (although specific messages relating to work were omitted) and adopted a media strategy of predominantly radio to reduce costs, in line with the Scottish campaign. Results were consistent with the campaign evaluations from Scotland and Norway, there were small changes in public beliefs but no corresponding changes in work-related behavioural outcomes or health utilisation (Gross *et al.*, 2010). These findings were attributed to the low level of awareness acquired from limited, low budget media coverage (predominantly radio rather than television) and the lack of specific messages relating to the importance of staying at or returning to work and self-management (Gross *et al.*, 2010).

In summary, in contrast to the Victorian mass media campaign targeting back pain subsequent campaigns did not show any effect on work-related outcomes. Findings from evaluations suggest that it is, at least partly, related to lower levels of funding resulting in fewer resources and limited media choices. The Scottish, Norwegian and Canadian campaigns all reported lower levels of awareness

following low budget, primarily radio-based media campaigns. It is also likely that there are contextual factors unique to each setting or jurisdiction that need to be considered when developing and implementing a campaign. It may be that people from one jurisdictions might be at a different stage of change (and therefore more ready to take action) to those from another so certain messages may work in one setting but not another. Findings from the Scottish and Canadian campaigns also highlight the need for messages to make explicit recommendations relating to the work context. More generally, Buchbinder (2008) observed that the back pain campaigns lacked an underlying guiding theory of health behaviour change.

Table 3.1
Descriptions of evaluations of OHSW mass media campaigns published from 2001 to 2010

Setting	Target behaviour & audience	Campaign rationale & approach	Campaign message	Campaign duration, intensity, media & cost	Other accompanying activities	Evaluation method	Outcome of evaluation
Victoria, Australia (1997-1999)	Back pain. Shift general population's attitudes & beliefs about back pain. Improve knowledge & attitudes of GPs.	Rising cost of back pain claims, recognised need for education of GPs, employers & general public, recognised importance of attitudes & beliefs associated with back pain disability. Use of experts, sport personalities, actors, health care professionals	<i>Back pain. Don't take it lying down.</i> Not a serious problem, be positive & up to you, continue usual activity & stay at work if possible, x-rays not useful, surgery not answer	Sept 1997-Dec 1999. Intense first year, less intense next year, intense last 3 months. TV, radio, billboard, print, posters, publications. Cost: US\$7.6Mill, 3yrs	The Back Book made widely available. GPs sent guidelines for management of employees with compensable lower back pain. Seminars, personalities visiting workplaces, public events.	Quasi-experimental, non-randomised before-after design with control group (adjacent state, NSW). Population-based phone surveys, postal surveys for GPs. Focus groups. Analysis of worker claims database.	86% awareness of campaign. Beliefs improved in general population & for GPs in Victoria (Buchbinder et al., 2001a, 2001b). These gains were sustained 3 and 4.5 yrs after campaign ended (Buchbinder & Jolley, 2004, 2005, 2007). Decline in no. of back pain claims (15%), rates of compensated days, & costs of medical care (20% per claim). Benefits outweighed cost of campaign (Buchbinder et al., 2008).
Scotland (2000-2004)	Back pain. People with back pain, employers, GPs, health professionals	Health education campaign about the new management of back pain. Promote consistent advice. Use of sport personalities, presentations to health professional meetings.	<i>Working backs Scotland.</i> Stay active, try simple pain relief, if you need it, get advice. Did not include specific message regarding work due to a perception it would be viewed suspiciously.	Oct 2000-Feb 2004 Radio: Oct 2000, Feb & Oct 2001 & 2002, Feb 2003. 15-sec ads on all commercial radio stations, posters, leaflets, website. Cost: Not specified	Parallel professional education campaign - 60,000 info packs distributed to all health professionals treating back pain through own professional bodies.	Non-experimental observational design. Structured monthly samples of 1000 adults surveyed on beliefs and professional advice sought - 2 months before campaign and 3 yrs following.	60% awareness of campaign. Major shift in public attitudes (active vs rest) and professional advice from one month into campaign and maintained over 3 years (Waddell et al., 2007). No change in work-related outcomes: sickness absence, social security benefits for back pain, & number seeking advice.
Vestfold & Aust-Agder counties, Norway (2002-2005)	Back pain. General population, health care providers	Rising costs of back pain, confusion about management of pain, launch of new guidelines. Humorous animation figure	<i>Active back.</i> Low back pain not dangerous, x-ray not useful, activity good, recover faster by returning to work, surgery unnecessary	April 2002-June 2005. 4 one-month bursts. Info pamphlet mailed to all households, local TV, radio, cinema ad, website, posters in clinics. Cost: US\$1.1Mill (\$550,000 media)	Information campaigns -GPs, physio, chiro, & social security officers sent guidelines & invited to courses. Practical intervention in 6 workplaces.	Non-experimental. Two counties compared with nearby control county before and after. Beliefs - Phone survey before during & after campaign. Analysis of sickness absence & surgery rates	39% awareness of campaign. Small change in public beliefs re: staying active & at work & better self-coping attitudes in intervention counties. No differences in sickness behaviour (sick leave, surgery, scans) (Werner et al., 2008b). No improvement in beliefs of health care providers (Werner et al., 2008a).

Setting	Target behaviour & audience	Campaign rationale & approach	Campaign message	Campaign duration, intensity, media & cost	Other accompanying activities	Evaluation method	Outcome of evaluation
Alberta, Canada (2005-2008)	Back pain. Adults aged 25-54 years.	Rising costs of back pain, perceived need for public education about management of back pain. Use of endorsements by health care professionals.	<i>Back pain. Don't take it lying down.</i> Generic advice - feel better sooner by staying active.	May 2005-2008 Radio during peak listening months. Radio, website, posters, pamphlets, bus ads, billboards, info articles in news publications, TV-PSA (free). Cost: US\$930,000, 3yrs	None	Quasi-experimental before/after design with control group (nearby province). Interrupted time series for indicators of health care utilization and disability. Analysis of claims databases. Data analysed on monthly basis from 5 yrs before campaign to end. Beliefs – phone survey.	49% awareness of campaign. Gross et al.(2010) reported a small change in beliefs (staying active). There was no change in health utilization, or work disability related outcomes.
United Kingdom (2005-2006)	Musculoskeletal disorders (back pain). Employers & employees, particularly in Manufacturing, distribution, construction & public sector.	Back pain identified as the biggest cause of MSDs & estimated to cost economy £5 billion per year. Raise profile of back pain, educate employers how to reduce incidence, create self-responsibility among employees.	<i>Backs! 2005 (Better Backs)</i> Employers: Better backs mean better business. Employees: Simple, easy steps can reduce the risk of back pain.	Phase 1: June-July 2005 Phase 2: July 2005 - Mar 2006 National & trade press, national radio, websites, posters. Cost: £3.3Mill (publicity alone £1.84 Mill)	4000 targeted inspections (Jan-Feb 2006) Stakeholder engagement: 119 awareness raising events & activities in 2005. Information packs/ toolkits.	Post interviews with employers and employees. Survey of employers with responsibility for health & safety. Text analysis of inspection forms.	32-39% recall of campaign. Inspections found to promote action to reduce MSD risks (Executive, 2006). Follow-up visits after a single inspection resulted in 51% taking action (revised procedures, training, new equipment) and a further 22% had work in progress. Reductions in MSD absence & incidents range from 10-93%.
United Kingdom (2005-2006)	Slips & trips in workplaces. Target sectors: Construction, manufacturing, general public services, healthcare, post/courier services, land transport, storage, retail, hotels & catering	National campaign to raise awareness of slip & trip accidents. Slips & trips identified as single most common cause of injuries in UK workplaces & increase in these injuries over last 5 yrs.	<i>Watch your step.</i> Call to action “Don't just see it, sort it” aimed to impress the need for personal responsibility & action to prevent accidents.	Phase 1: Oct 2005-Dec 2006 Print (91 national, 35 trade press), radio (19,250 ads on 275 stations), unpaid press & radio, website, posters, flyers. Phase 2: Jan 2006-March 2006 (follow up inspections, evaluation). Cost £1,836,000	Inspections (5,320), education/advice, and stakeholders engagement (toolkits developed for regulators & stakeholders, CDROM for duty holders).	Before and after phone interviews with employers, face-to-face interviews with employees. Follow up in-depth interviews with duty holders & company audits 7 months after campaign commenced. Inspectors and local authorities also interviewed (Ford <i>et al.</i> , 2007).	Campaign most successful at maintaining & enhancing activities in companies already focused on health and safety; greater uptake of slips and trips issues. Limited impact on awareness and attitudes in target population and larger stakeholder community not directly involved. Mix of campaign channels important & face-to-face contact most effective. Concluded that communications campaigns need to be supplemented by other activities.

Setting	Target behaviour & audience	Campaign rationale & approach	Campaign message	Campaign duration, intensity, media & cost	Other accompanying activities	Evaluation method	Outcome of evaluation
United Kingdom (2007)	Risks of working at height. Target groups: Employees working at height and employers of people working at height.	National mass media, education and inspection campaign to increase awareness of risks & influence attitudes & behaviours to working at height. No background given.	<i>Height aware.</i> Increase awareness of risks of injuries from working at height, even at low height and the need to take precautions and use appropriate safety equipment " <i>Take a moment, not a fall</i> "	May-June 2006 (6 wks) Four ads in press & industry magazines. Six ads on commercial radio nationally (awareness & occupation). Cost: Not specified	Education/promotional events – 28 Safety & Health Awareness Days aimed at building, plant maintenance contractors & 38 smaller breakfast events. Targeted inspections & follow up visits.	Self-report survey of 'at height' workers & employers (pre, post, follow up). Qualitative research among stakeholders and observations at events.	Oliver et al. (2007) reported 40% recall of campaign when prompted. Some improvement in attitudes toward risk of injury but few sought further information (8% employers, 4% workers) or reported taking any action (10% employers, 6% workers). Suggest keeping media campaigns local rather than national.
United Kingdom (2008-2009)	Risks of slips, trips and falls from height in workplaces. Employers in target sectors: Food & drink manufacturing; food retail; catering & hospitality; building & plant maintenance; construction.	Falling from height identified as most common cause of fatal injuries at work. Slips & trips most common cause of major injuries in workplace and numbers plateaued.	<i>Shattered Lives.</i> Simple mistakes can shatter lives. Awareness of risks. Call to action to increase preventative action by employers.	Phase 1: Feb 2008 for 6 weeks. Phase 2: Feb 2009 Press (national and regional), radio, online advertising, posters. Regional delivery through stakeholder networks and direct mailing of materials. Cost: Not specified	Phase 2: STEP – E-learning package launched. Promotional activity at events with stakeholders in targeted sectors.	Phone surveys with industry and workers (pre, post, 6mth follow up for phase 1 and post phase 2). Some qualitative research - focus groups and interviews.	Industry: 63% prompted recall. Managers were unclear what actions to take. A small number sought further information. Few reported taking action after the campaign (post 12%, follow up 8%) as they felt they were already doing enough. Workers: Little change in attitudes. Rise in workers asked to reduce risk of slips & trips in workplace by managers 6 mths after phase 1 but gains not sustained after phase 2 (GfK NOP Social Research, (2009).
United Kingdom (2008-2009)	Asbestos. Workers likely to be exposed: building maintenance and construction industries.	National campaign to raise awareness of the dangers of exposure to asbestos. Asbestos-related disease is the biggest single cause of work-related deaths. A quarter of deaths are tradesmen or maintenance workers who unknowingly disturb and breathe in asbestos while working.	<i>Asbestos: The hidden killer.</i> Raise awareness of risk, call to action to seek information, inform workers of rights (informed if in building, training what to do).	Nov 2008 - Nov 2009 Radio (6 executions in 2009, 5 in 2008), press (4 executions), online ad (2009), direct mail out. Cost: 2008: £951,891 2009: £875,388	Education: safety packs, PR activities (using real life case-studies).	Telephone surveys: 3 waves- pre, post 2008, post 2009	80% campaign recognition. Increase in proportion who feel risk from asbestos is high but the majority (62%) still regard the risk to them as low. Of those aware of the campaign, 60% have taken precautions against asbestos (statistically significant) (Coleman, 2010).

Setting	Target behaviour & audience	Campaign rationale & approach	Campaign message	Campaign duration, intensity, media & cost	Other accompanying activities	Evaluation method	Outcome of evaluation
United Kingdom (1995-2001)	Proactive health & safety management. Small-medium sized business employers.	Review found employers find occupational health harder to manage than safety. 'Educating' employers how to reduce levels of work-related illness by presenting a business case (i.e. costs of poor management & benefits of worker satisfaction).	<i>Good health is good business.</i> Raise awareness of occupational health & improve employer competence in managing health risks in workplace.	May 1995 - Mar 2001 Television, radio. Cost: Not specified	Information guide to risk assessment, seminars, inspection initiatives.	Telephone survey and face-to-face interviews of employers.	Organisations who were aware of the campaign had a more positive approach to occupational health and adopted a more comprehensive approach. The campaign tended to educate employers rather than persuade them of a business case for health risk management (Wright <i>et al.</i> , 2000).

4 Best practice for OHSW mass media campaigns

While there is an emerging body of research examining road safety and public health mass media campaigns, this study found that there is a paucity of research specifically exploring the use of mass media in OHSW or investigating what might be considered best practice. To fill this gap in knowledge, an Industry review was undertaken to obtain first hand insights into the role of mass media in the OHSW context. This was followed by a review of the literature published during the last decade.

THE ROLE OF MASS MEDIA IN OHSW CAMPAIGNS

Expectations regarding what OHSW mass media advertising can achieve need to be realistic. Mass media campaigns are generally more successful in fulfilling an agenda setting role by increasing awareness of an issue or problem rather than altering worker behaviour (Redman et al., 1990). In addition, mass media campaigns are most effective in changing existing behaviours and beliefs when combined with other intervention activities such as education initiatives, enforcement (targeted inspection), and community engagement (e.g. Mustard & Bielecky, 2007). The mass media component of a campaign might be useful for identifying actions that are required by the target group while other parts of the campaign (e.g. enforcement) might be more likely to achieve behaviour change. Behaviour change might occur over a number of years or decades but such longer-term effects are not easily measured. Industry respondent comments confirmed that these concepts were well recognised in jurisdictions. To summarise, industry respondents agreed that:

- Mass media is used for broad awareness raising campaigns and agenda setting with only a minor role in changing behaviour.
- Tactical or targeted activities are preferred for campaigns communicating specific messages for specific groups or industries. Mass media campaigns are almost always combined with other tactical activities to achieve greater impact and in some cases these activities are used without a mass media component.
- The decision to use mass media is dependent on factors such as the type of message, the size of the target audience and the monetary resources available.

OBSERVATIONS FROM THE INDUSTRY REVIEW

Communications practitioners also provided useful opinions about what works and what doesn't work in OHSW mass media campaigns based on their experiences. The following observations were made based on their comments:

- There was much variation in the frequency, size and intensity of campaigns between jurisdictions. This was a reflection of differences in budgets and the level of resources available.
- For the most part, OHSW mass media campaigns are generally strategically developed based on the latest trends in worker injury statistics, by identifying common themes or specific issues through qualitative market research and in response to changes to the organisation's role. To a lesser extent, campaigns have been developed in a reactionary response to specific events.
- Similar to the research literature, campaigns using threat appeals have reported mixed responses. Threat appeals are currently used only for campaigns targeting young workers. Most Australian jurisdictions currently favour the positive emotional 'Homecomings' campaign for broad OHSW awareness raising.
- While television is regarded as the best form of mass media it is expensive. A combination of different types of media is preferred to reach a wider audience and the type used is dependent

on the target audience. For example, campaigns targeting young workers are more successful when they use interactive Internet based activities including social media and viral options as well as novel tactical means to capture their attention.

- Most jurisdictions offered copies of their evaluation reports when requested, but generally evaluations were not published or readily available making it difficult to learn from the experiences of others. However there was some evidence of information sharing among Australian counterparts.
- Few campaign evaluations in Australia incorporated safety problems identified by inspectors as an outcome measure or used objective behaviour measures. Instead campaign evaluations relied on measures of campaign awareness, message recall and self-reported attitudes and behaviours. It was acknowledged that worker injuries and fatalities could not be causally linked to media campaigns.
- The longer-term effects of OHSW mass media campaigns are largely unknown.
- The potential value in conducting a unified national campaign was acknowledged, particularly by jurisdictions with fewer resources, but there was some resistance to the concept with participants citing social environmental differences between jurisdictions as a major barrier.

THEORIES OF BEHAVIOUR CHANGE

- Health-related mass media campaigns appear to be more successful when well-researched psychological theories of behaviour change are used to develop the campaign. Theory can provide a conceptual foundation for a campaign, assist campaign message design and focus, and accommodate evaluation of the campaign. While these findings are likely to apply in the OHSW context, few OHSW campaign developers use a theoretical framework in campaign design.

CAMPAIGN DESIGN AND DEVELOPMENT

The most effective means of designing and delivering messages through the mass media is unknown and it is possible that it varies across jurisdictions and cultures (Buchbinder et al., 2008). Nevertheless, there is an increasing body of knowledge from public health and road safety that suggest the following principles might enhance the effectiveness of OHSW mass media campaigns:

- The campaign should be strategically developed. The campaign objectives must be clearly defined and appropriate variables should be selected that can measure whether these objectives were achieved.
- The process for identifying the target behaviour and target group should be data driven and systematic.
- The target audience should be segmented and the message tailored to the motivation and needs of these subgroups. There is increasing evidence that one style of message may work for one audience but not another.
- Mass media should be integrated with other activities such as enforcement (i.e. inspections), education and community engagement.
- Messages might be communicated more effectively when the mode of communication matches campaign goals and the target group preferences. Different types of media should be combined to reach as many as possible in the target group. New online social networking provides opportunities to quickly spread concise messages to many people and facilitate the two-way flow of information.

- There is some evidence (i.e. from back pain mass media campaigns) suggesting OHSW campaign messages need to make explicit recommendations relating to the work context.
- Sufficient resources are necessary to reach the target audience and to sustain appropriate exposure to the campaign.
- In the absence of any new knowledge specific to OHSW mass media campaigns, industry standards suggest three exposures are needed to achieve minimum effective frequency.

THREAT APPEALS

Threat appeals are increasingly being used in campaigns targeting young workers. However, there are very few studies specifically evaluating the effects of threat appeals in the OHSW context. While there is much literature from road safety and public health examining the effectiveness of threat appeals, findings are inconclusive. There are some suggestions that fear appeals can have an impact but only when specific conditions are satisfied. The fear appeal must describe a threat, highlighting its severity and susceptibility of the audience, and suggest a specific plan for reducing or avoiding the threat (e.g. a safe behaviour) that is possible to carry out, perceived as effective, and allows the target to believe that they are capable of performing the safe behaviour. Without these elements, the campaign may be counterproductive because individuals may believe that they are unable to protect themselves from the threat, resulting in defensive and maladaptive responses. *On this basis, fear appeals should be used with caution in the OHSW context.*

Emerging research suggests response efficacy may influence the effectiveness of positive emotional appeals as well as threat appeals. This suggests that positive emotional appeals may also need to feature messages providing effective emotion relieving strategies or safe behaviours for the target audience. Given the current interest in emotional appeals in Australian OHSW campaigns, future research should investigate this relationship further.

EVALUATIONS OF OHSW MASS MEDIA CAMPAIGNS

Conducting an evaluation of a mass media campaign is costly but important. The literature search revealed a limited number of published evaluations of OHSW mass media campaigns but few were subjected to quality scientific evaluation. Around half of the studies reported objective work-related behavioural measures while the other half were primarily based on indicators of message awareness, attitudes, beliefs, behavioural intentions or self-reported behaviours. Some of the studies were cross sectional or used simple before and after analyses that did not take into account other factors that might influence behaviour (i.e. no control group). The vast majority of the mass media campaigns were integrated with other activities such as education initiatives, inspections, and stakeholder engagement. The following points should be addressed when conducting evaluations of OHSW mass media campaigns:

- Ensure sufficient resources are available to reach the target audience and sustain exposure to the campaign.
- Conduct a process evaluation that collects and analyses information on the implementation of campaign activities.
- The ideal evaluation methodology is not always feasible or practical. Where possible, evaluations of campaign effectiveness should be based on before and after comparisons of objective work-related behaviours or variables that are closely linked to worker safety.
- To increase the knowledge base, findings from evaluations of OHSW campaigns should be disseminated and published in the peer-reviewed literature.

GAPS IN KNOWLEDGE

The following issues are identified as requiring further research:

- Generally, there is a need for further research to determine which communication appeals are most effective for particular behaviours, industries and demographic groups. More of this research should be conducted in 'real world' settings and include manipulation checks to see if the intended emotion is evoked.
- Several theories have been developed around the persuasiveness of threat appeals but little theoretical framework has been developed for positive emotional appeals. The message content and factors affecting positive emotional appeals should also be investigated further.
- Research findings suggest gain-framed messages might be appropriate for OHSW prevention campaigns. Further research should explore this issue.
- New evidence suggests that positive emotional appeals are potentially more effective than traditional negative, fear based approaches for males, a high risk group (Goldenbeld et al., 2008; Lewis et al., 2008). This is an interesting area for further research however; more evidence is required to determine whether these findings apply to the OHSW context.
- More comprehensive documentation of campaign activities, duration and intensity are needed to better understand the relationship between exposure levels and behaviour change in OHSW.
- There is a general need for more OHSW campaigns that are sustained over a number of years. These campaigns should be subject to high quality evaluations with valid and reliable measures that monitor long term effects.
- Information regarding the cost effectiveness of OHSW mass media campaigns is largely unknown.

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Appendix A – Advantages and disadvantages of specific media

Table A1
Advantages and disadvantages of audiovisual media. Source: Delhomme et al. (2009)

Audiovisual media						
Advantages				Disadvantages		
Television	Reach and selectiveness	Information capacity, lifespan, attention	Cost	Reach and selectiveness	Information capacity, lifespan, attention	Cost
	<ul style="list-style-type: none">■ Very large reach in general segments■ Selective in specific segments■ High frequency in specific audiences■ Accessible to everyone	<ul style="list-style-type: none">■ Allows for more complex messages■ Combines audio and video■ Possibility of eliciting emotions in target audience	<ul style="list-style-type: none">■ Most cost-efficient to reach large audience	<ul style="list-style-type: none">■ Low useful reach	<ul style="list-style-type: none">■ Short-lived duration of messages (seconds)	<ul style="list-style-type: none">■ High production cost
Radio	Reach and selectiveness	Information capacity	Cost	Information capacity, lifespan, attention		
	<ul style="list-style-type: none">■ Large reach■ Good for reaching local audience■ High selectivity■ Dynamic■ Allows for on-the-spot presence	<ul style="list-style-type: none">■ Good as reminder■ Stimulates imagination■ Possibility of eliciting emotions in target audience	<ul style="list-style-type: none">■ Low production cost	<ul style="list-style-type: none">■ Low attention■ Short lifespan■ Fleeting duration of message■ Not for complicated messages		
Cinema	Reach and selectiveness	Information capacity, lifespan, attention	Cost			
	<ul style="list-style-type: none">■ Selective■ Low noise ratio	<ul style="list-style-type: none">■ High attention■ Allows for more complex messages■ Possibility of eliciting emotions in target audience	<ul style="list-style-type: none">■ High production cost			

Table A2
Advantages and disadvantages of printed media. Source: Delhomme et al. (2009)

Printed media				
	Advantages		Disadvantages	
Newspapers	Reach and selectiveness <ul style="list-style-type: none"> ■ Excellent at reaching mass audience ■ Large reach in general ■ Allows geographical selectivity, e.g., local audience 	Information capacity and lifespan <ul style="list-style-type: none"> ■ High credibility ■ Flexible ■ High information capacity ■ Short lead time 	Reach and selectiveness <ul style="list-style-type: none"> ■ Poor demographic selectivity 	Information capacity and lifespan <ul style="list-style-type: none"> ■ Poor reproduction quality ■ Short lifespan
Magazines	Reach and selectiveness <ul style="list-style-type: none"> ■ Excellent at reaching segmented audience (and pass-along readership) 	Information capacity and lifespan <ul style="list-style-type: none"> ■ Long lifespan ■ Excellent reproduction quality 	Cost <ul style="list-style-type: none"> ■ High insertion cost 	Information capacity and lifespan <ul style="list-style-type: none"> ■ Slow production cycle ■ Not flexible ■ High noise ratio ■ Long life span ■ Low frequency ■ Long lead time ■ Topic of campaign has to rely on editorial content (can also be an advantage)
Flyers, leaflets, brochures	Reach and selectiveness <ul style="list-style-type: none"> ■ High selectiveness 	Information capacity <ul style="list-style-type: none"> ■ Allows for complex messages 	Cost <ul style="list-style-type: none"> ■ Low cost 	Information capacity, lifespan, attention <ul style="list-style-type: none"> ■ Low attention
Direct mailings	Reach <ul style="list-style-type: none"> ■ Selective communication ■ Excellent for relatively small target groups and opinion leaders ■ High information capacity 			Information <ul style="list-style-type: none"> ■ "Junk mail" image ■ Need for address lists

Table A3

Advantages and disadvantages of interpersonal and electronic media. Source: Delhomme et al. (2009)

Interpersonal communication				
Advantages			Disadvantages	
Face-to-face Events, personal discussions, group discussions, forums, lectures, speeches, exhibition stands	Information capacity ■ Effective ■ Involvement of target group		Reach ■ Low exposure	Cost ■ High cost per contact
Telephone	Reach ■ Possibility of reaching people more than once		Reach ■ Low reachability scale ■ Need for address lists, people do not like it	Cost ■ High cost per contact
Electronic supports				
Advantages			Disadvantages	
E-newsletters, direct e-mailings, sms, Internet discussion forums, viral marketing	■ Provides effortless transfer to others ■ Utilizes existing communication networks (e.g., family, friends, co-workers, customers) ■ Takes advantage of others' resources (relay messages by placing links on 3rd party resources) ■ Low cost		■ Need to simplify the message so it can be transmitted easily and without degradation ("The shorter the better") ■ Audience controls exposure	
Internet websites	Reach ■ High selectivity	Information capacity ■ Interactive, flexible ■ Allows for complex messages	Cost ■ Low cost	Reach ■ Low impact ■ Audience controls exposure

Table A4
Advantages and disadvantages of outdoor media. Source: Delhomme et al. (2009)

Outdoor media				
Advantages				Disadvantages
Billboard posters	<i>Reach</i>	<i>Lifespan</i>	<i>Cost</i>	<i>Information capacity</i>
Small-size posters, banners	■ High exposure	■ Long lifespan	■ Low cost	■ Low attention
Variable message signs	■ Able to reach the audience nearly everywhere / exposure near (on-the-spot presence)			■ Low information capacity
	■ Geographically selective			