



WP3

RESULTS OF A SYSTEMATIC LITERATURE REVIEW OF EFFECTIVE POLICIES

**FOR ALCOHOL RELATED INJURIES, ROAD TRAFFIC INJURIES,
DROWNING PREVENTION AND OCCUPATIONAL INJURIES**

CEREPRI and APOLLO WP3 partners

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EXECUTIVE SUMMARY

Project Background: Injuries are, after cardiovascular diseases, cancer and respiratory diseases, the fourth most common cause of death in the EU. The Apollo WP3 specifically aims to explore and present the available evidence-based practices and policies for the prevention of injuries, propose meaningful recommendations in the form of a concise European Code Against Injuries (ECAI) and identify success and failure factors that account for the variability of the burden of all types of injuries across member states.

Aims & Methodology: This report constitutes only a part of WP3. It seeks to identify good policies for injury prevention strategies through a systematic literature review of the existing policies suggested in the literature for the prevention of fatal injuries. Particular focus has been given to the ones that have been implemented successfully and have indeed decreased mortality as far as injuries of four priority groups are concerned: those related to alcohol, road traffic, drowning and the occupational field. In order to benefit from the universal nature of this public health issue, international literature has been reviewed on the existing policies aimed at the reduction of risk of death. The collected data was subsequently appraised using a set of criteria mainly relating to the policy's effectiveness, innovativeness and validity.

Results: For the prevention of alcohol-related injuries, the most effective approach was found to be a combination of increased alcohol prices, reduced availability of alcohol and legislative measures against drunk driving and underage drinking. Road-traffic injuries, despite their huge burden, continue to receive a rather low policy response, but policy recommendations do exist and include safer transport planning, speed limit, improved design of motor vehicles to make them safer and better management of already existing road infrastructure. Drowning, a major cause of injury-related death globally affecting mainly the children, can be prevented effectively through modification of the environment, awareness rising of the general public and enforcement of existing laws on use of safety devices and design of aquatic facilities. Finally, as far as the occupational injuries are concerned, the fields that were found to be responsible for the majority of fatal accidents and injuries were Agriculture, Transport, Construction, Electricity and Manufacturing. An improved training of workers, careful handling of equipment,

responsible personal behaviour and proper risk assessments carried out by the employer were components of policies found in all five occupational fields.

Conclusion: Despite the diversity that characterises the four injury fields already mentioned coupled with the variety of policies developed in different countries and settings, a number of recurrent themes was recorded during the literature search. In general, a combination of approaches proved to be more effective, and it became obvious that prevention efforts demand multi-sectoral and multidisciplinary contributions from all levels- local, regional, national and European. It is important to remember that the factors that are known to increase the risk of an injury happening change over time, and new ones such as population ageing or migration, development of improved technology, new patterns of working and living of European citizens begin to appear. If injury prevention policies are to be effective they will need to adapt to a European setting that continues to change and evolve.

Module 1

Systematic review of effective policies for injury prevention

Injuries are, after cardiovascular diseases, cancer and respiratory diseases, the fourth most common cause of death in the EU Member States. The global burden of injuries is expected to rise considerably during the coming decades, particularly in low income and middle-income countries. Despite the growing significance of this problem, few countries have national policies, strategies or plans of action for injury prevention. Comprehensive policies and well-thought out action plans are essential if injury prevention efforts are to be effective¹. However, prevention efforts demand multi-sectoral and multidisciplinary contributions from all levels (local, regional and national).

Introduction

The aim of this review is to explore the available evidence concerning good policies for reducing the burden of injuries. After defining the injury priorities to be targeted by Apollo WP3, it was decided to gather Policies for the following four injury priorities: road traffic injuries, alcohol related injuries, occupational injuries and drowning. Therefore, the goal of this research was to review published findings on policies aiming to decrease the burden of the above mentioned unintentional injuries. The report includes a systematic review of those existing policy papers, which main goals and objectives aim to prevent injuries related to alcohol, road traffic, work related and drowning.

Alcohol Policies:

WHO outlines causal relationships between alcohol consumption and more than 60 types of disease and injury. It writes, “*Alcohol consumption is the leading risk factor for disease burden in developing countries, and the third largest risk factor in developed countries*”.² Beyond the numerous chronic and acute health effects, alcohol use is associated with widespread social, mental and emotional consequences. The global burden related to alcohol consumption, both in terms of morbidity and mortality, is considerable. There is growing recognition that “alcohol consumption is a significant contributor to the global burden of disease” which means that alcohol requires greater attention from the public health community than it is receiving at present. Specifically, the report by WHO² asserts that alcohol policy can reduce social harm and suggests that government measures to control supply and demand, minimize alcohol-related harm and promote public health are among the most important strategies to reduce such harm.

¹ World Health Organization. Developing policies to prevent injuries and violence: guidelines for policy makers and planners. (http://www.who.int/violence_injury_prevention/publications/39919_oms_br_2.pdf)

² World Health Organization. Global status report on alcohol. Geneva, World Health Organization, 2004.

The European Court of Justice has repeatedly confirmed that combating alcohol-related harm is an important and valid public health goal.³ In 2001 the Council adopted a Recommendation on the drinking of alcohol by young people, in particular children and adolescents,⁴ which invites the Commission to follow-up, assess and monitor developments and the measures taken, and to report back on the need for further actions.⁵ Most Member States have taken actions to reduce alcohol-related harm, and many of them have extensive policies in this field.

Research evidence shows that it is possible to develop and implement comprehensive and effective alcohol policies. Effective alcohol social policy can put into place measures that control the supply of alcohol and/or affect population-wide demand for alcohol beverages. Comprehensive policies address legal measures to: control supply and demand, control access to alcohol (by age, location and time), provide public education and treatment for those who need assistance, levy taxation to affect prices and to pay for problems generated by consumption, and harm-reduction strategies to limit alcohol-related problems such as impaired driving. However, their effectiveness depends on adequate enforcement. Passing a minimum drinking age law, for instance, will have little effect if it is not backed up with a credible threat to remove the licenses of outlets that repeatedly sell alcohol beverages to under-aged people.⁶

The European Union directives concerning **alcohol control policies** that have so far been adopted specifically relate to three aspects of policy:

- alcohol taxation
- alcohol advertising
- alcohol transportation (between Member States for personal use)
-

The EU has attempted to harmonize alcohol taxation among member states, but to date has only succeeded in setting minimum excise rates. The EU placed restrictions on the advertising of alcohol on television through the 1989 Council Directive 89/552/EEC. This Directive restricts the content of alcohol advertisements on television.

The EU has also recently adopted a programme of priority measures for road safety, which includes a recommendation to ratify blood alcohol limits of 50mg% (0.5%) or less. All of the countries are in line with EU recommendations, apart from the UK, Ireland, Italy and Luxembourg which have an 80mg% (0.8%) BAC limit. Sweden has a low tolerance of just 20mg% (0.2%).⁷

Road Traffic Policies:

The rapid development and expansion of the road network and the increase in number of motor vehicles have led to a substantial rise in levels of both passenger and freight

³ Franzen case (C-189/95), Herinonen case (C-394/97), Gourmet case (C-405/98), Catalonia (C-190 and C-179/90), Loi Evin (C-262/02 and C-429/02)

⁴ Council Recommendation 2001/458/EC (OJ L 161, 16.6.2001, p.38)

⁵ Full report published at <http://ec.europa.eu/comm/health>

⁶ Harkin AM, Anderson P, Lehto J. Alcohol in Europe - A Health Perspective. Copenhagen: WHO Regional Office for Europe, 1995

⁷ EU Council Directive 89/552/EEC

movement. Injuries resulting from road accidents continue to pose a serious public health problem and are the leading cause of death among people under the age of 25. Consequently, safety related issues have emerged. The number of road accidents and fatalities has been growing in recent years, which call for concerted and multi-disciplinary preventive and remedial efforts. Without increased safety effort and appropriate action to match the growing number of motor vehicles in low to middle income countries, road traffic injury is predicted to be the third leading contributor to the global burden of disease and injury by 2020^{8,9}.

Worldwide, the following factors are most clearly associated with RTI: the type of vehicle and its maintenance condition; the design of highway infrastructure; meteorological conditions; risk conduct by drivers, such as alcohol intake, drug consumption, and excessive speed, lack of sleep, driver distraction and neglect of security measures.¹⁰

Despite the growing burden of road traffic injuries, road safety has received insufficient attention at both international and national levels.⁹ This has resulted in part from: a lack of information on the magnitude of the problem and its preventability; a fatalistic approach to road crashes; and a lack of the political responsibility and multidisciplinary collaboration needed to tackle it effectively.¹⁰ Road traffic injuries can be prevented, and their consequences can be alleviated if the appropriate policies, strategies, road safety regulations and guidelines are in place. While policies have been implemented, to be effective these policies must be enforced fairly, firmly and consistently.

Drowning:

Drowning is the second cause of injury-related death globally, after road traffic accidents. Although it affects all age groups, certain groups are particularly vulnerable. Over half of the global mortality occurs among children less than 15 years of age.¹¹ But the problem is even greater. For each childhood drowning fatality, it is estimated that there are 1 to 4 nonfatal submersions serious enough to result in hospitalization. Nonfatal drowning can cause brain damage that result in long-term disabilities ranging from memory problems and learning disabilities to the permanent loss of basic functioning (i.e. permanent vegetative state).¹²

Nevertheless, the history of drowning statistics in many high-income countries (e.g. Netherlands) has shown that the impact of drowning on public health can be greatly

⁸ Murray CJL, Lopez AD, eds. The global burden of disease: a comprehensive assessment of mortality and disability from diseases, injuries, and risk factors in 1990 and projected to 2020. Boston, MA, Harvard School of Public Health, 1996.

⁹ World Report on Road Traffic Injury Prevention, World Health Organization Geneva 2004 (available at: http://www.paho.org/English/DD/PUB/Summary_World_report_Road_safety.pdf)

¹⁰ Mock C, Kobusingye O, Anh le V, Afukaar F, Arreola-Rissa C. Human resources for the control of road traffic injury. Bull World Health Organ 2005; 83: 294–300.

¹¹ Van Beeck EF, Branche CM, Szpilman D, Modell JH, Bierens JJ (2005). *A New Definition of Drowning: Towards Documentation and Prevention of a Global Public Health Problem*. Bulletin of the World Health Organization; 83 (11): 853-856.

¹² National Center for Injury Prevention and Control (2006). *Water-Related Injuries: Factsheet*. Available online at: <http://www.cdc.gov/ncipc/factsheets/drown.htm>.

reduced.¹² Effective prevention requires policies that address known risk factors. The purpose of the current report is to identify and present existing policies aiming at preventing childhood drowning.

Occupational Injuries:

Definitions of occupational injuries vary greatly, reflecting the different philosophies of approaching occupational accidents¹³. This report uses the definition provided by the Resolution concerning statistics of occupational injuries, resulting from occupational accidents, adopted by the 16th International Conference of Labour Statisticians (ICLS)¹. According to the Resolution, occupational injury is '*any personal injury, disease or death resulting from an occupational accident*'. An important point to make is that an occupational injury is, therefore, distinct from an occupational disease, which is a disease contracted as a result of an exposure over a period of time to risk factors arising from work activity.

According to European Statistics on Accidents at Work (ESAW), approximately 4.7 million accidents at work resulting in more than 3 days of absence from work occurred in the European Union (EU-15) in 2001¹⁴ [work and health in the EU, a statistical portrait]. This equates to approximately 4% of the workers experiencing an accident at work during the year. In addition, when accidents with no absence from work or where the absence is up to 3 days are taken into account, the estimated total number of accidents at work in the EU is about 7.6 million per year (estimated for year 2000). In 2001 there were approximately 4900 fatal accidents at work. This means that one European Union worker experiences an accident at work every 5 seconds and one worker dies every two hours because of an accident at work¹⁵.

According to the International Labor Organization (ILO) worldwide in 2001 351 000 people died of fatal occupational injuries and every year more than 2 million people die from both occupational accidents or work-related disease. By conservative estimates, there are 270 million occupational accidents. However, the safety of work varies enormously between countries, economic sectors and social groups, with death and injury taking a particularly heavy toll in developing nations, where large numbers of people are engaged in hazardous activities. What is important to keep in mind is that throughout the world, the poorest and the least protected from the injury threat, often women, children and migrants are among the most affected.¹⁶

The World Health Organization, on the other hand, states that economic losses from workplace fatalities, injuries and illnesses involve an enormous and unnecessary health burden, suffering and economic loss amounting to 4-5% of GDP. According to estimates

¹³ 13th CEIES, 83

¹⁴ Work and health in the EU, a statistical portrait (2003), p. 7

¹⁵ Work and Health in the EU, A statistical portrait, 2003 edition, p.31

¹⁶ (ref: http://www.ilo.org/global/Themes/Safety_and_Health_at_Work/lang-en/index.htm)

for the year 2000 there are 2 million work-related deaths per year, and the WHO estimates that only 10-15% of workers have access to a basic standard of occupational health¹⁷.

Classification issue

The International Standard Classification of Occupations (ISCO) is an International Labour Organization (ILO) classification structure. The current version used, in its third edition and with an updated version being prepared for release by 2008, divides jobs into 10 major groups, with each group further organized into sub-major, minor and unit groups. Its purpose is to define sets of groups according to the tasks and duties undertaken in each job.

Even though the practicality and usefulness of the ISCO classification is undeniable, for this report the choice was made to use the Statistical Classification of Economic Activities (NACE, Nomenclature Générale des Activités Economiques dans les Communautés Européennes¹⁸) because it is this classification that was used for the first joint analysis of the various European statistical data sources on Health and Safety at Work, carried out in 2003¹⁹. The analysis of the report aimed to provide useful added value, or in other words increase and improve the result of policy monitoring, identification of preventive needs and describe the situation in Europe in statistical terms. It is a statistical portrait that did not intend to be comprehensive, in the sense of attempting to cover all aspects of health and safety at work but, instead, topics were selected for being both important and for which reliable enough statistical data existed at the level of the European Union.

As mentioned earlier, for this current report, the primary focus is on the prevention of fatal occupational injuries. For this reason, the first of the criteria of the NACE report that was examined was the incidence rates of fatal accidents at work. The largest number of fatal accidents at work, for all workers, was observed in the fields of agriculture, construction and transport. In addition to the incidence rates of fatal accidents and in order to gain a more in depth view of the occupational injury health and safety field it was decided to take into consideration also other criteria. These were:

- the percentage of workers with a long standing health problem or disability caused by an accident at work
- absence due to an accident at work
- incidence rates of non-fatal accidents at work
- percentage of workers feeling that their health is at risk because of work
- percentage of workers feeling at risk of injury because of work

Using the primary criteria as well as the additional ones, the occupational categories of Agriculture, Construction, Transport, Manufacturing and Electricity/Gas resulted to be repeatedly among the first three, causing more death, injury, disability and absence from

¹⁷ (ref: http://www.who.int/occupational_health/en/)

¹⁸ http://ec.europa.eu/eurostat/ramon/index.cfm?TargetUrl=DSP_PUB_WELC

¹⁹ Work and Health in the EU, As Statistical portrait, data 1992-2002, 2003 edition

work in the European Union countries. Therefore, the injury prevention policy measures that were considered in the literature review were related only to these five occupational fields.

A score was attributed to each of the seventeen evaluation criteria from minimum zero points, if they did not fulfil the criteria at all, to a maximum of five points if they did fulfil them. Then, adding up all the separate scores the total one was calculated. In order to present the results of the review in the most clear and understandable way, and taking into consideration the great number of the policies found, a selection had to take place of only a limited number of policies. For this reason, it was decided to present in each of the five occupational fields only the three top score policies. To avoid selecting policies with very low score, the cut-off point of 50 was chosen.

Methodology

Description of the search strategy and the review process

The type of source that was searched was policy papers, which contained a statement developed by an authority (e.g. European agency, governmental agency, local authority) that contained guidelines/instructions to meet its stated goals and objectives aimed at the prevention of the three causes of unintentional injury.

Search strategy and selection criteria

A computerized literature search of MEDLINE, PubMed, SafeyLit, National Guidelines Clearinghouse, US National Guideline Clearinghouse, Google Search Engine, and other websites was carried out. Other electronic sources were searched also, such as injury-specific websites, related organizations, networks, and international injury prevention centers etc. Among the above electronic sources the following lists of sources were browsed:

- Center For Injury Prevention Policy and Practice (www.safetypolicy.org)
- The Community Guide (www.thecommunityguide.org/)
- World Health Organization (WHO), Department of Injury and Violence Prevention (www.who.int/violence_injury_prevention)
- The National Highway Traffic Safety Administration (www.nhtsa.dot.gov)
- Health and Safety Executive (HSE) (www.hse.gov.uk/alcoholdrugs/)
- Institute of Alcohol Studies (IAS) (www.ias.org.uk)
- Department for Transport (www.dft.gov.uk/)
- The Royal Society for the Prevention of Accidents (ROSPA) (www.rospa.com)
- National Center for Injury Prevention and Control (CDC) (www.cdc.gov)
- Alcohol focus Scotland: The national agency on alcohol misuse (www.alcohol-focus-scotland.org.uk)
- Alcohol concern (<http://www.alcoholconcern.org.uk>)
- Ministry of Economy and Finance (www.mou.gr)
- Dept for children, schools and families (<http://www.dfes.gov.uk>)
- The Royal Life Saving Society Australia (RLSSA) – Australia (www.royallifesaving.com.au)

- Center for Injury Prevention Policy and Practice – USA (www.cipp.org)
- World Congress on Drowning – Netherlands (www.drowning.nl)
- Drowning Prevention Foundation – USA (www.drownprevention.com)
- Foundation for Aquatic Injury Prevention (FAIP) – USA (www.aquaticisf.org)
- Consumer Products Safety Commission (CPSC) – USA (www.cpsc.gov)
- National Safety Council – USA (www.nsc.org)
- International Life Saving Federation – Belgium (www.ilsf.org)
- Canadian Red Cross – Canada (www.redcross.ca)
- American College of Emergency Physicians (ACEP) – USA (www.acep.org/webportal)
- ENA Emergency Nurses Association – Injury Prevention Institute/EN CARE – USA (www.ena.org/ipinstitute)
- Health & Safety Executive, HSE (UK) (www.hse.gov.uk)
- International Labour Organization, ILO (www.ilo.org)
- OSHA-Europa, European Agency for Safety and Health at Work (Europe) (www.osha.europa.eu)
- World Health Organization, WHO (www.who.int/en)
- Eurostat, Statistics on the EU and candidate countries (www.eurostat.ec.europa.eu)
- The National Institute for Occupational Safety and Health, NIOSH (USA) (www.cdc.gov/niosh)
- Centres for Disease Control and Prevention, CDC (USA)

The search was conducted from June 2006 until October 2007.

Key words used

Alcohol related injuries: injury or accident or fatal or non-fatal or alcohol or alcohol-related, alcohol-use or alcohol-abuse or drink AND prevention or policy or recommendation or standard or legislation or guideline or rule or strategy or plan or procedure.

Road traffic injuries: injury or accident or fatal or non-fatal or road traffic or motor vehicle or car or automobile or transportation or pedestrian or road vulnerable users or cyclists or two-wheelers AND prevention or policy or recommendation or standard or legislation or guideline or rule or strategy or plan or procedure.

Drowning: Injury or accident or fatal or non-fatal or drowning or submersion or water accident or water safety or pool safety or aquatic safety or bathtub or bathing area or fresh water AND prevention or policy or recommendation or standard or legislation or guideline or rule or strategy or plan or procedure.

Occupational: Policy or prevention or recommendation or guideline or plan or procedure or legislation or rule or strategy or standard AND injury or injure or , wound, or damage, or wrong or hurt or harm or grievance or hazard or trauma or traumatic or impairment or lesion AND work or workplace or work-related or work-site or workforce or workstation or employee or employer or job AND fatal or lethal or mortal or fatality or fateful or deadly AND occupational health or accident fatal or non-fatal

Operational definition

In the context of WP3, the term “policy” was operationally defined as follows:

Policy: A statement developed by an authority that may contain guidelines/instructions to meet its stated goals and objectives aimed at preventing a priority injury

Criteria

Inclusion criteria

Policies were included if: (1) published between 1996-2006, (2) the population of interest was children (0-14), adolescents/young adults (15-24), adults (25-64) and elderly (65+), (3) the language was English, Italian, Greek (4) the injury priorities were alcohol related injuries, road traffic injuries, occupational injuries and drowning, and (5) the authority that developed the policy (European agency, Governmental agency, local authority)

Data extraction

The data presentation was realized via a comprehensive and user-friendly constructed Access database (figure 1). More specifically, for each policy paper the following pieces of information were included:

- Information regarding the document where the identified policy is published (title; type of publication; author(s); website or other sources where the document was found; date of publication)
- Information regarding the policy document (title and identification number of the policy document; authors; date of release (announcement))

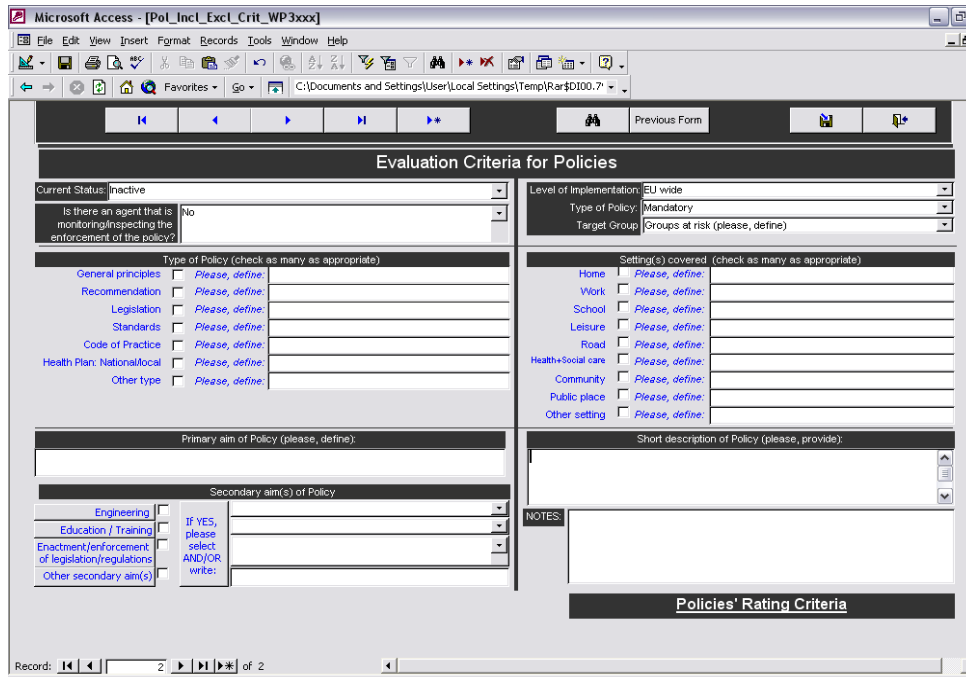


Figure 1. Access database (evaluation criteria for policies).

Evaluation and rating criteria

The included policy documents were thereafter assessed for their quality according to evaluation and rating criteria (table 1) developed by Apollo WP3 experts and CEREPRI. Evaluation and rating criteria were completed only for included documents after the first assessment.

Evaluation criteria for policies included: current status of the policy (active, inactive, etc), existence of agent that is monitoring/inspecting the policy enforcement, character of the policy (e.g. mandatory, optimal, incentive-based), target group(s), type of the policy (e.g. general principles, recommendations, legislation, standards, code of practice, health plan), setting(s) covered (e.g. home, work, school, leisure, road, health and social care, community, public place), level of implementation (e.g. international, EU wide/region, country/region, community, organization), aims of the policy (primary aim and secondary aims) and a short description of policy.

Table 1. Rating criteria for selected policies

Criteria	Rating scale
(1) The correct problem is identified	From 1=least to 5=most N/A= Not applicable
(2) The problem is properly defined	From 1=least to 5=most N/A= Not applicable
(3) All important aspects are taken into account	From 1=least to 5=most N/A= Not applicable
(4) Policy’s objectives/ goals are clearly defined	From 1=least to 5=most N/A= Not applicable
(5) Policy’s content/ procedures are clearly defined	From 1=least to 5=most N/A= Not applicable

(6) Evidence for Policy Effectiveness is clear	From 1=least to 5=most N/A= Not applicable
(7) Feasibility - The adoption of the proposed policy is feasible	From 1=least to 5=most N/A= Not applicable
(8) Feasibility - The implementation of the proposed policy is feasible	From 1=least to 5=most N/A= Not applicable
(9) Policy's objectives regarding the needs of society for the set priorities are appropriate	From 1=least to 5=most N/A= Not applicable
(10) Efficiency - The ratio of the obtained results is commensurate with the amount of the resources used	From 1=least to 5=most N/A= Not applicable
(11) Effectiveness - Objectives have been met or are being met	From 1=least to 5=most N/A= Not applicable
(12) Transferability - The policy is transferable for other target groups	From 1=least to 5=most N/A= Not applicable
(13) Transferability - The policy is transferable for other settings	From 1=least to 5=most N/A= Not applicable
(14) Sustainability - The sustainability of the policy's effects is evident	From 1=least to 5=most N/A= Not applicable
(15) Innovativeness - Policy uses an innovative / original manner to achieve its goals	From 1=least to 5=most N/A= Not applicable
(16) Adaptiveness - Policy needs modifications in order to be reused	From 1=least to 5=most N/A= Not applicable
(17) Validity - Policy's actions are suitable for the achievement of the main goals	From 1=least to 5=most N/A= Not applicable

Results

1. Alcohol related injuries

A total of 58 Policy documents, aiming at reducing alcohol related injuries, were retrieved and further reviewed. Of these 43 fulfilled all inclusion criteria and 6 were characterised as promising.

	N
Gathered	58
Included papers	43
To be further reviewed (promising)	6
Excluded papers	9
Other date of publish	4
No specific policy statement included	2
Other reasons not stated by the partners	2
Not sufficient information provided about the policy	1

From the total number of papers, 47 documents referred to *Alcohol related injury* and 2 documents referred to a *Combination (road traffic injury; alcohol related injury)*.

Taking the body of the included policy documents as a whole, our conclusions relating to the effective published policies designed to prevent alcohol related injuries are summarized in Table 2a and 2b. Table 2a and 2b summarizes the strategies and briefly describes the research evidence for each. Some specific strategies have not been fully researched and evaluated. Their level of effectiveness is not yet known. In most cases, however, these strategies are based on well-established prevention principles or are similar to other strategies that do have research evidence of effectiveness. These strategies are therefore considered promising.

1) Legislations/ regulations/ strategies

Table 2b. Summary of Policies to reduce alcohol related injuries

Title/Authors	Type of Policy	Description/Aims	Level of Implementation/ Setting(s) covered	Policy's Effectiveness
Evaluation of Policy Alternatives to Reduce Alcohol-Related Traffic Fatalities (Tavares AF) ¹	Alcohol related-traffic accidents policies (laws)	<p>The document summarizes evaluation studies of alcohol related traffic policies/ Driving Under the Influence Laws (DUI), including:</p> <p>Deterrence policies:</p> <ul style="list-style-type: none"> ▪ DUI Laws (mandatory jail sentence for first offenders and minimum blood alcohol concentration; mandatory license withdrawal associated with an increase in fines; license suspension; preliminary breath tests; sobriety checkpoints; prohibitions of plea-bargaining) and law enforcement and increased certainty of both conviction and financial punishment <p>Alcohol Policies, including:</p> <ul style="list-style-type: none"> ▪ Alcohol availability; alcohol taxation; transportation policies (mandatory seat belt laws, airbags, 55 mph speed limit, raising driving age to 21, car interlock system, car impoundment and confiscation); <p>Education and rehabilitation policies:</p> <ul style="list-style-type: none"> ▪ School-based programs, public health television advertisements or tax money to anti drunk-driving groups and rehabilitation policies (targeted to the offending population and constitute a component of punitive sanctions) <p>Civil liability policies</p> <p>Aim of policies:</p> <ul style="list-style-type: none"> ▪ The reduction of alcohol-related traffic fatalities. 	<ul style="list-style-type: none"> ▪ United States ▪ Road/ Public place/ school 	<ul style="list-style-type: none"> ▪ Deterrence policies: deters illegal behavior in the short term and not in the long run ▪ Restricting Alcohol availability; (sufficient evidence) ▪ Alcohol taxation; transportation policies; education and civil liability policies. (unclear effectiveness) ▪ Rehabilitation policies (partially effective)
A Guide to Zero Tolerance and Graduated Licensing: Two Strategies That Work (Pacific Institute for Research and Evaluation) ²	Strategies	<p>Zero tolerance laws:</p> <ul style="list-style-type: none"> ▪ Zero tolerance laws prohibit young persons (<21 years) from driving a vehicle while they have a BAC greater than 0.00 percent, 0.01 percent, or 0.02 percent. <p>Graduated licensing:</p> <ul style="list-style-type: none"> ▪ Graduated licensing is “a system designed to ease beginning drivers into the traffic environment under controlled exposure to progressively more difficult driving experiences”. It includes nighttime driving curfews, increased age of licensure, and graduated driving privileges in which a variety of driving restrictions are lifted as the driver gains experience and maturity. <p>“Minimum Age 21” alcohol purchase laws</p> <p>Aim of the strategies:</p> <ul style="list-style-type: none"> ▪ The goal of zero tolerance is to eliminate driving by young persons who have consumed any alcohol. ▪ The goal of graduated licensing is to phase in exposure to increasingly complex driving tasks and environments for young people as they mature and develop their driving skills. 	<ul style="list-style-type: none"> ▪ United States/ Australia/ New Zealand ▪ Road 	<ul style="list-style-type: none"> ▪ Zero-tolerance laws have been shown to reduce alcohol related crashes involving youth by between 17 and 50% ▪ Graduated licensing has led to reductions in both alcohol-related and non-alcohol related crashes. (evidence of effectiveness)

Table 2b continued (1)

Title/Authors	Type of Policy	Description/Aims	Level of Implementation/ Setting(s) covered	Evidence of Policy's Effectiveness/ Reviewers' rating
Traffic Safety Facts Laws: .08 BAC Illegal per se Level (National Highway Traffic Safety Administration) ³	Legislation and enforcement	<ul style="list-style-type: none"> ▪ Primary enforcement of .08 BAC Illegal per se Level and lower the illegal per se limit from .08 BAC to .05 BAC <p>Aim:</p> <ul style="list-style-type: none"> ▪ To prevent individuals from operating a motor vehicle while impaired by alcohol, putting their own lives and the lives of others, at risk; Saving lives and reducing serious alcohol-related injuries. 	<ul style="list-style-type: none"> ▪ United States ▪ Road/Community 	<ul style="list-style-type: none"> ▪ Is a proven effective countermeasure that reduces alcohol-related traffic fatalities, especially when combined with an administrative license revocation (ALR) law. (evidence of effectiveness) <p>Reviewers' rating: 3.8</p>
Report from the Commission to the European Parliament and the Council on simplification of agricultural legislation, 2001 ⁴	Regulations	<ul style="list-style-type: none"> ▪ Commission regulation 1227/2000, laying down detailed rules on the common organisation of the market in wine with regard to production potential of wine including prohibition of new plantings, rules on planting and replanting rights, abandonment of wine-growing areas, aid for conversion and restructuring of vineyards. ▪ Commission regulation 1623/2000, laying down detailed rules on the common organisation of the market in wine with regard to market mechanisms including storage aid, distillation measures, aid for the use of grape must, and disposal of alcohol of vinous origin which authorized the motor fuel sector inside the Community as a new outlet. ▪ Commission regulation 1622/2000, 2000, laying down certain detailed rules on the common organisation of the market in wine and establishing a community code of oenological practices and processes. ▪ Commission regulation 1607/2000, 2000, laying down detailed rules on the common organisation of the market in wine, in particular the title relating to quality wine produced in specified regions. ▪ Commission regulation 883/2001, 2001, laying down detailed rules on the common organisation of the market in wine as regards trade with third countries in products in the wine sector. ▪ Commission regulation 884/2001, 2001, laying down detailed rules on the common organisation of the market in wine concerning the documents accompanying the carriage of wine products and the records to be kept in the wine sector. ▪ Commission regulation 753/2002, laying down detailed rules on the common market organisation of the market in wine for applying the chapter on the description, designation and protection of certain products. 	<ul style="list-style-type: none"> ▪ EU wide 	<ul style="list-style-type: none"> ▪ Unavailable evidence of effectiveness <p>Reviewers' rating: 3.2</p>

Table 2b continued (2)

Title/Authors	Type of Policy	Description/Aims	Level of Implementation/ Setting(s) covered	Evidence of Policy's Effectiveness/ Reviewers' rating
Alcohol Taxation (IC AP, 2006) ⁵	Regulation	<ul style="list-style-type: none"> ▪ Taxation is used as a means to limit the demand for alcohol by raising its cost, making it less accessible to consumers. <p>Aim of taxation:</p> <ul style="list-style-type: none"> ▪ Beverage alcohol excise taxes are used both to discourage consumption, relative to nonalcoholic drinks, and to modify drinking patterns, relative to alcohol products with lower percentage of alcohol by volume. 	<ul style="list-style-type: none"> ▪ International ▪ Community 	<ul style="list-style-type: none"> ▪ Research provides mixed and inconsistent findings for effectiveness of taxation. (unclear evidence for effectiveness) <p>Reviewers' rating: 3.6</p>
National Alcohol Policy Ireland. Executive summary (Health Promotion Unit of the Department of Health) ⁶	Code of Practice/ National strategy	<p>Education /training:</p> <ul style="list-style-type: none"> ▪ Promotion/awareness raising (health promotion/education; professional training) <p>Enhancement/ Enforcement of legislation/regulations:</p> <ul style="list-style-type: none"> ▪ Taxation & pricing; license code – restrictions on availability (Intoxicating liquor cannot be sold to persons under 18 years, it cannot be purchased by persons under 18 years and it cannot be consumed in public by persons under 18 years); advertising regulations; maximum BAC of 80 mg%. <p>Aim:</p> <ul style="list-style-type: none"> ▪ To promote moderation in alcohol consumption, for those who wish to drink, and reduce the prevalence of alcohol related problems in Ireland, thereby promoting the health of the community. 	<ul style="list-style-type: none"> ▪ Ireland ▪ Home/ Work/ Road/ Community/ Public place (treatment services) 	<p>Unavailable evidence of effectiveness</p> <p>Reviewers' rating: 3.8</p>
What are the most effective and cost-effective interventions in alcohol control? (Österberg, 2004) ⁷	Strategies (review)	<p>Education/ training:</p> <ul style="list-style-type: none"> ▪ Server training; alcohol educational strategies <p>Enhancement/ enforcement of legislation/ regulation:</p> <ul style="list-style-type: none"> ▪ Pricing ▪ control of alcohol availability (minimum legal purchasing age; government monopoly of retail sales; restrictions on sales times and regulations of the number of distribution outlets) ▪ drunk driving measures (sobriety checkpoints; random breath testing; lowered BAC limits; suspension of driver's licenses; graduated licensing for novice drivers; brief interventions for hazardous drinkers) ▪ Server liability and enforcement of on premise regulations combined with community mobilization; ▪ advertising bans <p>Treatment</p>	<ul style="list-style-type: none"> ▪ EU wide 	<ul style="list-style-type: none"> ▪ Taxation; stricter control on the alcohol availability via a minimum legal purchasing age, government retail monopoly sales, restrictions on sales times and on the number of distribution outlets (highly effective and cost-effective) ▪ Measures against drunk-driving: sobriety check points, RBT, lower BAC limits, suspension of driver's licenses, graduated licensing for novice drivers, brief interventions for hazardous drinkers (effective and inexpensive) ▪ Server liability & enforcement of on-premise regulations combined with community mobilization; (sufficient evidence of effectiveness) ▪ Server training; educational approaches; advertising and advertising bans (insufficient evidence of effectiveness)

Table 2b continued (3)

Title/Authors	Type of Policy	Description/Aims	Level of Implementation/ Setting(s) covered	Evidence of Policy's Effectiveness/ Reviewers' rating
Effects of lowering the legal BAC limit in Austria (Bartl et al) ⁸	Legislation	<p>Education/training:</p> <ul style="list-style-type: none"> ▪ Compulsory participation in psychological driver improvement programs for drivers with BAC levels of .12% or higher and compulsory medical and psychological driver selection test for drivers with BAC levels of .16% or higher. <p>Enactment/enforcement of legislation/regulations:</p> <ul style="list-style-type: none"> ▪ .05% BAC-level law; extended period of withdrawal of license, higher amount of fine increasing with BAC-level. <p>Aim of legislation:</p> <ul style="list-style-type: none"> ▪ To reduce drink driving road traffic fatalities. 	<ul style="list-style-type: none"> ▪ Austria ▪ Road 	<ul style="list-style-type: none"> ▪ The weakness of the law is that drivers with BAC-levels higher than .05% but lower than .079% only get punished. Their license is not suspended unless the BAC-level it is .08% or higher. (evidence of effectiveness in the short run; long term studies are needed) <p>Reviewers' rating: 3.6</p>
Traffic Safety facts, Laws: .08 BAC Illegal per se Level (NHTSA, 2004) ⁹	Legislation	<p>Enforcement of legislation:</p> <ul style="list-style-type: none"> ▪ Primary enforcement of .08 BAC Illegal per se Level <p>Aim of law:</p> <ul style="list-style-type: none"> ▪ The aim is to prevent individuals from operating a motor vehicle while impaired by alcohol, putting their own lives, and the lives of others, at risk. Saving lives and reducing serious alcohol-related injuries. 	<ul style="list-style-type: none"> ▪ United States ▪ Road/ Community 	<ul style="list-style-type: none"> ▪ .08 BAC laws are associated with reductions in alcohol related fatalities, particularly in conjunction with administrative license revocation (ALR) laws. (evidence of effectiveness) <p>Reviewers' rating: 5</p>
Traffic Safety Facts Laws: High-BAC Laws (NHTSA Regional Office, 2006) ¹⁰	Legislation	<p>Enactment/enforcement of legislation/regulations</p> <ul style="list-style-type: none"> ▪ Stronger sanctions or additional penalties for individuals convicted of DWI with a BAC of .15 g/dL or greater than for individuals convicted of the same offense but with a lower BAC; Sanctions include: one-year suspension of license, provided that after 45 days a provisional license may be issued so the offender can drive to employment or school and only in a vehicle equipped with an ignition interlock; and a mandatory assessment by a certified substance abuse official with possible referral to counseling if appropriate. <p>Aim of law:</p> <ul style="list-style-type: none"> ▪ To prevent individuals from operating a motor vehicle while impaired by alcohol, putting their own lives, and the lives of others, at risk. ▪ Saving lives and reducing serious alcohol-related injuries. 	<ul style="list-style-type: none"> ▪ United States ▪ Road 	<p>Unavailable evidence of effectiveness</p> <p>Reviewers' rating: 3.3</p>
The effects of introducing or lowering legal per se blood alcohol limits for driving: an international review (Mann et al, 2001) ¹¹	Legislation	<ul style="list-style-type: none"> ▪ Administrative per se laws reducing BAC limits: BAC limit of 80 mg%, 50 mg% or 20mg%-different limits according to the level of implementation) <p>Aim of laws:</p> <ul style="list-style-type: none"> ▪ The aim of the policy is to reduce drink-driving (alcohol-related collisions, fatal collisions, alcohol-injury collisions). The major impact desired with a new or reduced BAC limit is a general deterrent effect, where people who might otherwise drink and drive are deterred from doing so by knowledge of the law and the consequences of violating it. 	<ul style="list-style-type: none"> ▪ UK, Canada, Japan, The Netherlands, US, Australia, Sweden, France, Denmark, Austria ▪ Road 	<ul style="list-style-type: none"> ▪ Reductions in alcohol-related collisions, injuries and/or fatalities have been observed in most jurisdictions in which the legal limit has been reduced. (evidence of effectiveness) <p>Reviewers' rating: 3.8</p>

Table 2b continued (4)

Title/Authors	Type of Policy	Description/Aims	Level of Implementation/ Setting(s) covered	Evidence of Policy's Effectiveness/ Reviewers' rating
Effects of Minimum Drinking Age Laws: Review and Analyses of the Literature from 1960 to 2000 (Wagenaar et al, 2002) ¹²	Legislation	Enactment/enforcement of legislation: <ul style="list-style-type: none"> ▪ Age-21 Minimum Legal Drinking Age (MLDA) Aim of law: <ul style="list-style-type: none"> ▪ The aim of this policy is to lower alcohol use and its associated problems among youth. 	<ul style="list-style-type: none"> ▪ United States ▪ Road/ Community 	<ul style="list-style-type: none"> ▪ Higher legal drinking ages reduce alcohol consumption and reduce rates of traffic crashes. (evidence of effectiveness) Reviewers' rating: 3.6
The Effects of Price on Alcohol Consumption and Alcohol-Related Problems (Chaloupka et al. 2002) ¹³	Legislation	Enactment/enforcement of legislation/regulations: <ul style="list-style-type: none"> ▪ Minimum legal drinking age (MLDA) ▪ Tax increases; beer taxes; increases in total price of alcohol ▪ Drunk-driving laws: severe sanctions; license suspension; administrative per se laws; breath test laws ▪ Controlled availability of alcohol. Aim of laws: <ul style="list-style-type: none"> ▪ To reduce alcohol consumption and its consequences. 	<ul style="list-style-type: none"> ▪ United States ▪ Road/ Public place (alcohol outlets) 	<ul style="list-style-type: none"> ▪ Increases in the prices of alcoholic beverages lead to reductions in drinking and heavy drinking as well as in the consequences of alcohol use and abuse (Evidence of effectiveness) Reviewers' rating: 3.8
Traffic Safety Facts Administrative License Revocation (NHTSA, 2006) ¹⁴	Legislation	Enactment/enforcement of legislation/regulations: <ul style="list-style-type: none"> ▪ The law requires prompt, mandatory revocation or suspension of driver's licenses for alcohol and other drug test failure and refusal. Administrative license revocation (ALR) laws are based on objective chemical tests (usually breath, sometimes blood or urine) and are similar to "illegal per se" criminal laws against impaired driving. ALR allows law enforcement and driver licensing authorities to revoke or suspend a driver's license swiftly, without long delays, while awaiting a criminal trial. The offender retains the right of due process through an administrative appeal system. Aim of legislation: <ul style="list-style-type: none"> ▪ To reduce alcohol consumption and its consequences. 	<ul style="list-style-type: none"> ▪ US and the District of Columbia ▪ Road 	<ul style="list-style-type: none"> ▪ Suspending or revoking driver's licenses for those driving while under the influence of alcohol or other drugs has proven to be a successful deterrent when implemented by a State. (Evidence of effectiveness) Reviewers' rating: 3.6
Evaluation of the Effectiveness of Low Blood Alcohol Concentration Laws for Younger Drivers (Zwering et al, 1999) ¹⁵	Legislation	<ul style="list-style-type: none"> ▪ "Zero tolerance laws" and lower BAC limits for young drivers Aim of policy: <ul style="list-style-type: none"> ▪ The law aims to reduce the rates of all motor vehicle crashes, crashes involving injuries and fatal crashes. 	<ul style="list-style-type: none"> ▪ Australia/ United States ▪ Road 	<ul style="list-style-type: none"> ▪ States with zero BAC laws: 22% reduction, in night-time, single vehicle fatalities ▪ States with 0.02% BAC laws: 17% Reduction. ▪ States with 0.04% to 0.06% BAC laws: only 7% reduction Reviewers' rating: 3.8

Table 2b continued (5)

Title/Authors	Type of Policy	Description/Aims	Level of Implementation/ Setting(s) covered	Evidence of Policy's Effectiveness/ Reviewers' rating
Prevention of Deaths From Harmful Drinking in the United States: The Potential Effects of Tax Increases and Advertising Bans on Young Drinkers (Hollingworth et al, 2005) ¹⁶	Legislation	<ul style="list-style-type: none"> ▪ Tax increase ▪ Advertising ban <p>Aim of interventions:</p> <ul style="list-style-type: none"> ▪ The prevention of harmful drinking. 	<ul style="list-style-type: none"> ▪ United States ▪ Public place (alcohol outlets)/ Media 	<ul style="list-style-type: none"> ▪ A tax-based 17% increase in the price of alcohol of \$1 per six pack of beer could reduce deaths from harmful drinking by 1,490, equivalent to 31,130 discounted years of potential life saved or 3.3% of current alcohol-attributable mortality. ▪ A complete ban on alcohol advertising would reduce deaths from harmful drinking by 7,609 and result in a 16.4% decrease in alcohol-related life-years lost. (strong evidence for effectiveness)
Effectiveness of Sobriety Checkpoints for Reducing Alcohol-Involved Crashes (Elder et al, 2002) ¹⁷	Legislation	<p>Enactment/enforcement of legislation/regulations:</p> <ul style="list-style-type: none"> ▪ Random Breath testing checkpoints (RBT); ▪ Selective breath testing checkpoints (SBT) <p>At sobriety checkpoints, law enforcement officers systematically stop drivers to assess their degree of alcohol impairment using behavioral, physiological, or chemical tests. At random breath testing all drivers stopped are given breath tests for blood alcohol levels, and selective breath testing (SBT) checkpoints, at which police must have reason to suspect the driver has been drinking before demanding a breath test.</p> <p>Aim of policy:</p> <ul style="list-style-type: none"> ▪ To deter drinking and driving by systematically stopping drivers for assessment of alcohol impairment, thus increasing the perceived risk of arrest for alcohol-impaired driving. 	<ul style="list-style-type: none"> ▪ United States/ Australia/ Wales ▪ Road (rural areas; urban areas; combination of them.) 	<p>Reviewers' rating: 3.6</p> <ul style="list-style-type: none"> ▪ Substantial reductions in crashes were observed for both checkpoint types across various outcome measures and time periods. Both RBT and SBT checkpoints can play an important role in preventing alcohol-related crashes and associated injuries. <p>Reviewers' rating: 3.6</p>
National Alcohol taxation (Ministry of Economy and Finance, 2001) ¹⁸	Legislation 2960/2001	<p>Enactment/enforcement of legislation/regulations:</p> <ul style="list-style-type: none"> ▪ Alcohol taxation 	<ul style="list-style-type: none"> ▪ Greece ▪ Alcohol outlets 	<p>Unavailable evidence of effectiveness</p> <p>Reviewers' rating: 3.1</p>

Table 2b continued (6)

Title/Authors	Type of Policy	Description/Aims	Level of Implementation/ Setting(s) covered	Evidence of Policy's Effectiveness/ Reviewers' rating
Alcohol in Europe: A Public Health Perspective (Anderson, 2006) ¹⁹	Policy Recommendations/ Legislations/	<p>Environmental modification:</p> <ul style="list-style-type: none"> ▪ Safer bar environment/containers; public transport <p>Education/Training</p> <ul style="list-style-type: none"> ▪ Promotion/awareness raising: education; communication; training and public awareness; server training and civil liability; safe ride programs; school-based education courses; community programs for safe driving; mass media and counter-advertising; low risk drinking guidelines; warning labels on alcohol products; family and community interventions; responsible beverage service; community mobilization <p>Enactment/enforcement of legislation/regulations:</p> <ul style="list-style-type: none"> ▪ Random breath testing; lowered BAC limits; license suspension combined with treatment programs; lower BAC limits for young drivers; alcohol locks; designated drivers; minimum drinking age; enforcement of on-premise regulations <p>Other</p> <ul style="list-style-type: none"> ▪ Brief advices provided at primary care settings; interventions for individuals; social welfare-based programs. <p>Aim of policy recommendations:</p> <ul style="list-style-type: none"> ▪ To reduce the consumption of alcohol and the acute and long-term adverse. To reduce alcohol consumption and its consequences. 	<ul style="list-style-type: none"> ▪ US/ Australia/ EU wide ▪ Home/ Road/ Work/ School/ Community/ Public place (alcohol outlets)/ Health & Social care (primary care settings; accident & emergency departments) 	<ul style="list-style-type: none"> ▪ RBT; lowered BAC levels, license suspension, lower BAC levels for young drivers; taxation; managing the physical availability of alcohol (limiting hours/days of sale and raising the minimum drinking age). (strong evidence of effectiveness) ▪ Mass media programs; altering the drinking context; advertising bans; (sufficient evidence) ▪ Designated driver; safe drive programs; education, communication, training and public awareness (limited evidence) ▪ Alcohol locks (partially effective) <p>Reviewers' rating: 4.0</p>
University of Florida Alcohol Policy 6C1-2.019 (University of Florida) ²⁰	General Principles/ rules	<p>Enactment/enforcement of legislation/regulations:</p> <ul style="list-style-type: none"> ▪ Alcohol availability: places where sale of alcohol beverages are permitted; places where alcohol consumption is allowed; days/hours and conditions for sale; advertising bans; MLDA 21 years; penalties for not adhering to the rules) <p>Aim of rules:</p> <ul style="list-style-type: none"> ▪ The enforcement of Florida's liquor laws for the welfare of its students, staff, faculty and the surrounding community. 	<ul style="list-style-type: none"> ▪ Florida ▪ University campus 	<p>Unavailable evidence of effectiveness</p> <p>Reviewers' rating: 3.7</p>

Table 2b continued (7)

Title/Author(s)	Type of Policy	Description/Aims	Level of Implementation/ Setting(s) covered	Evidence of Policy's Effectiveness/ Average rating
Nordic Alcohol Policy and Globalization as a Changing Force (Hellebø, 2003) ²¹	General principles/ Strategies	<p>Enactment/enforcement of legislation/regulations</p> <ul style="list-style-type: none"> ▪ State monopolies control both wholesale, limit import and export of alcohol; on-premise and off-premise control; reduction of private profits and promotion of all aspects of alcohol; restriction of retail access to alcohol, and maintain high retail prices. <p>Aim:</p> <ul style="list-style-type: none"> ▪ To reduce the consumption of alcohol and the acute and long-term adverse effects of alcohol consumption. The main goal is to maintain a lower overall consumption of alcoholic beverages and lower levels of associated alcohol-related problems 	<ul style="list-style-type: none"> ▪ Sweden / Norway ▪ Community 	<p>Unavailable evidence of effectiveness</p> <p>Reviewers' rating: N/A</p>
Submission to the Productivity Commission inquiry into National Competition Policy Arrangements (NCP) (Alcohol and other Drugs Council of Australia) ²²	General principles/ Strategies	<p>Enactment/enforcement of legislation/regulations:</p> <ul style="list-style-type: none"> ▪ Maintaining minimum age of legal consumption ▪ Requiring that retailers be suitable persons with sufficient knowledge of relevant legislation ▪ Preventing the sale of alcohol to people who are intoxicated ▪ Control of alcohol availability by reductions in the hours and days of sale, numbers of alcohol outlets, and restrictions on access of alcohol ▪ Establishment of "dry" areas, which means liquor licensing laws enforcement. <p>Aim of strategies:</p> <ul style="list-style-type: none"> ▪ Prevention and reduction of the health, economic and social harm caused by alcohol and other drugs to individuals, families, communities and the nation. 	<ul style="list-style-type: none"> ▪ Australia ▪ Public place 	<p>Unavailable evidence of effectiveness</p> <p>Reviewers' rating: N/A</p>
The Effects of 0.08 BAC laws (Apsler et al. 1999) ²³	Legislation	<p>Enactment/enforcement of legislation/regulations:</p> <ul style="list-style-type: none"> ▪ 0.08 BAC legislation and 0.02 BAC legislation for underage drivers; administrative license revocation laws (ALR). <p>Aim of laws:</p> <ul style="list-style-type: none"> ▪ To reduce alcohol impaired driving, crashes and fatal crashes. 	<ul style="list-style-type: none"> ▪ United States ▪ Road 	<ul style="list-style-type: none"> ▪ The rate of alcohol involvement in fatal crashes declined in eight of the states studied after the effective date of the 0.08 BAC law. 0.08 laws work best in conjunction with other laws, especially ALR laws (highly effective). <p>Reviewers' rating: 4.6</p>
Drug and Alcohol Abuse Prevention Policy for Employees (Southeastern Louisiana University) ²⁴	Legislation	<p>Education/Training:</p> <ul style="list-style-type: none"> ▪ Promotion/awareness raising: education and counseling. <p>Aim of policy:</p> <ul style="list-style-type: none"> ▪ To provide a workplace free from the illegal use of drugs and alcohol and seeks to make its employees aware of the dangers of drug and alcohol abuse as well as the availability of drug counseling, rehabilitation and employee assistance through various communications media available to it. 	<ul style="list-style-type: none"> ▪ University of Louisiana ▪ School 	<p>Unavailable evidence of effectiveness</p> <p>Reviewers' rating: 4.0</p>

Table 2b continued (8)

Title/Authors	Type of Policy	Description/Aims	Level of Implementation/ Setting(s) covered	Evidence of Policy's Effectiveness/ Reviewers' rating
Blood Alcohol Concentration Limits Worldwide (ICAP, 2002) ²⁵	Legislation	<p>Education/Training:</p> <ul style="list-style-type: none"> ▪ Promotion/awareness raising: education campaigns to inform public about the limits; officer training. <p>Law enforcement monitoring:</p> <ul style="list-style-type: none"> ▪ Random breath testing; sobriety checkpoints; broad police patrols; severe monetary fines; imprisonment and license suspension; alcohol interlock devices; available alternative transportation. <p>Aim of policy:</p> <ul style="list-style-type: none"> ▪ To reduce accidents related to alcohol consumption. 	<ul style="list-style-type: none"> ▪ International ▪ Road 	<ul style="list-style-type: none"> ▪ Highly effective policies <p>Reviewers' rating: 3.6</p>
Drug and Alcohol Abuse Prevention Policy (Murray State College) ²⁶	Legislation/ Campus Policy	<p>Education/Training:</p> <ul style="list-style-type: none"> ▪ Promotion/awareness raising: information about the dangers of drug and alcohol abuse. <p>Law enforcement monitoring:</p> <ul style="list-style-type: none"> ▪ More severe sanctions <p>Other:</p> <p>Treatment and rehabilitation programs for employees; counseling.</p> <p>Aim of policy:</p> <ul style="list-style-type: none"> ▪ Severe sanctions aim to reduce harm related to alcohol and abuse. 	<ul style="list-style-type: none"> ▪ University Community ▪ School 	<p>Unavailable evidence of effectiveness</p> <p>Reviewers' rating: 3.0</p>
Beverage Alcohol Availability Controls (ICAP, 2005) ²⁷	Legislation	<p>Enactment/Enforcement of legislation/ regulation:</p> <ul style="list-style-type: none"> ▪ State-run monopolies regulating the sale of beer, wine, or spirits; requirement for licenses for the sale of at least one category of beverage alcohol; restricting sale venues and hours of sale. <p>Aim of policy:</p> <ul style="list-style-type: none"> ▪ To reduce consumption of alcoholic beverages in order to protect the public from harmful effects of excessive alcohol consumption. The main aim of the policy is not whether to curtail consumption across a population, but to have an impact on those whose drinking is associated with harm. 	<ul style="list-style-type: none"> ▪ International ▪ Public place (alcohol retail outlets; on-premise and off-premise establishments) 	<ul style="list-style-type: none"> ▪ Retail monopolies show slightly lower per capita consumption figures than markets with unrestricted alcohol sales, as well as a lower frequency of drinking. However, whatever measures are implemented, they are effective if backed by proper enforcement, education of the general public about drinking patterns and outcomes, the implementation of adequate prevention, and the involvement of the broader community. <p>Reviewers' rating: 3.4</p>

Table 2b continued (9)

Title/Authors	Type of Policy	Description/Aims	Level of Implementation/ Setting(s) covered	Evidence of Policy's Effectiveness/ Reviewers' rating
Effectiveness of the Illinois .08 Law (Voas et al. 2000) ²⁸	Legislation/ Policy statement	<p>Education/Training:</p> <ul style="list-style-type: none"> ▪ Promotion/awareness raising: publicity of the content of the law; public information campaigns and news media reports of legislative or enforcement activity. <p>Law enforcement monitoring</p> <ul style="list-style-type: none"> ▪ BAC breath testing; police operations; more severe penalties for non-compliance to the law; more severe DUI penalties; designated driver program. <p>Aim of policy:</p> <ul style="list-style-type: none"> ▪ To create deterrence to impaired driving through increasing public knowledge of the law and the perceived risk of DUI arrest. 	<ul style="list-style-type: none"> ▪ Illinois ▪ Road 	<ul style="list-style-type: none"> ▪ The number of drivers in fatal crashes with positive BACs in Illinois decreased by 13.7% after implementation of the .08 law. <p>Reviewers' rating: 3.6</p>
Evaluation of a New Mexico's Anti-DWI Efforts (Lacey et al, 2000) ²⁹	Legislation/ Policy statement	<p>Law enforcement monitoring:</p> <ul style="list-style-type: none"> ▪ Anti-DWI laws: lower BAC limits from .10 to .08 BAC limit; zero tolerance laws for young drivers; increased penalties or driving while licensed revoked for DWI; sobriety checkpoints; increased taxation; increase fines and penalties for service to minors <p>Education/Training:</p> <ul style="list-style-type: none"> ▪ Promotion/awareness raising: Require alcohol server education; Require DWI education before receiving driver licenses; alcohol server training. <p>Aim of policy:</p> <ul style="list-style-type: none"> ▪ The legislative changes aimed to increase DWI enforcement through the implementation of periodic statewide checkpoint blitzes accompanied by extensive public information and education efforts. 	<ul style="list-style-type: none"> ▪ New Mexico ▪ School/ Road 	<ul style="list-style-type: none"> ▪ The analyses revealed a reduction in alcohol-related fatalities on the order of 19%. Surveys of licensed drivers at that time revealed high levels of perceived risk of arrest and awareness, particularly of DWI checkpoint enforcement efforts. (Evidence of effectiveness) <p>Reviewers' rating: 4.1</p>
Enhanced sanctions for higher BACs: Evaluation of Minnesota's high BAC law (McCartt AT, Northrup VS, 2004) ³⁰	Legislation/ Policy statement	<p>Enactment / enforcement of legislation/ regulation</p> <ul style="list-style-type: none"> ▪ High-BAC sanctioning law ($\geq .20$ BAC limit) ▪ Enhanced sanctions: enhanced administrative sanction; enhanced court sanction; increased penalties; Administrative License Plate Impoundment. <p>Aim of policy:</p> <ul style="list-style-type: none"> ▪ To reduce impaired driving, recidivism among high risk offenders through strong mandatory administrative and criminal sanctions. 	<ul style="list-style-type: none"> ▪ Minnesota ▪ Road 	<ul style="list-style-type: none"> ▪ High-BAC sanctioning is a promising approach for reducing recidivism among hardcore impaired drivers. ▪ Minnesota's law had success in increasing the severity of case dispositions for high-BAC offenders. There is also evidence of an initial effect on recidivism. <p>Reviewers' rating: 3.6</p>

2) Health Plan/ (National) Strategies

Table 2b continued (10)

Title/Author(s)	Type of Policy	Description/Aims	Level of Implementation/ Setting(s) covered	Evidence of Policy's Effectiveness/ Average rating
Alcohol harm reduction strategy for England (Prime Ministers Strategy unit of the Cabinet Office) ³¹	National Strategy	<p>Education</p> <ul style="list-style-type: none"> ▪ Alcohol providers should promote designated driver schemes and offer free/cheaper soft drinks to drivers; pubs must display information on alcohol content of drinks, sensible drinking and drink drive limits; peer-led prevention programs; server training. <p>Enhancement/ enforcement of legislation/ regulations</p> <ul style="list-style-type: none"> ▪ Increase police powers to undertake road side evidential breath testing, offenders disqualified from driving for at least 2 years will be required to retake the driving test; controled availability-not sell alcohol beverages to young people under 18 years- controls on hours and days of sale of alcohol, numbers of alcohol outlets, and restrictions on access; increased taxation; restrictions to suppliers; health warning label legislation; ban advertising targeted to young people; designated driver programs; 0.08% BAC limit; license suspension; code of packaging) <p>Other: Encourage the alcoholic drinks industry to promote more responsible drinking; helpline numbers;</p> <p>Aim:</p> <ul style="list-style-type: none"> ▪ To prevent increase in alcohol related harm in England; to reduce morbidity and mortality from alcohol –related conditions such as liver cirrhosis, the incidence of homicide and other crimes including rape, robbery, assaults, domestic violence and child abuse, and to reduce drinking and driving and binge drinking. The first key aim of the strategy is to improve the information available to individuals and to start the process of change in the culture of drinking to get drunk. 	<ul style="list-style-type: none"> ▪ England ▪ Home/ Work/ School/ Other (industries and suppliers; on- and off-premises) 	<p>Unavailable evidence of effectiveness</p> <p>Reviewers' rating: 3.3</p>
National Alcohol Strategy 2006–2009: Towards Safer Drinking Cultures (Ministerial Council on Drug Strategy) ³²	Health Plan: National Strategies	<p>Engineering:</p> <ul style="list-style-type: none"> ▪ Environmental modification (licensed premises; sufficient public transport and night transport options) <p>Education/training:</p> <ul style="list-style-type: none"> ▪ Awareness raising of the extend and impacts of intoxication (labeling, clear messages, social marketing campaigns), capacity building (aimed at government, nurses; police); training of managers of liquor outlets; community education <p>Enactment/ enforcement of legislation/regulations:</p> <ul style="list-style-type: none"> ▪ Enforcement of liquor licensing laws, monitoring of alcohol promotions; strengthen the alcohol availability including liquor licensing controls; lower BAC limits for all drivers; appropriate penalties for multiple drink drive offenders; examining the appropriateness of installing ignition interlock devices for repeated offenders; monitor alcohol promotions <p>Rehabilitation and Treatment:</p> <ul style="list-style-type: none"> ▪ providing alcohol-related brief interventions, treatment and rehabilitation support for drink drive offenders, as part of re-licensing requirements, in an effort to reduce recidivism; <p>Aim:</p> <ul style="list-style-type: none"> ▪ To prevent and minimize alcohol-related harm to individuals, families and communities through developing safer and healthy drinking cultures 	<ul style="list-style-type: none"> ▪ Australia ▪ Home/ Work/ Leisure/ Road/ Community/ Public place/ Primary care settings 	<p>Unavailable evidence of effectiveness</p> <p>Reviewers' rating: 3.4</p>

Table 2b continued (11)

Title/Author(s)	Type of Policy	Description/Aims	Level of Implementation/ Setting(s) covered	Evidence of Policy's Effectiveness/ Average rating
National Alcohol Strategy 2000–2003 (Alcohol Advisory Council of New Zealand and the Ministry of Health, Manatu Hauora) ³³	National Strategy (framework for action)	<p>Education/training:</p> <ul style="list-style-type: none"> ▪ Demand reduction – strategies that encourage reduced and responsible use of alcohol (e.g. education campaigns and the provision of information; responsible marketing) ▪ Education and training of alcohol treatment specialists; education and training for those working to prevent harm <p>Enactment/ enforcement of legislation/regulations:</p> <ul style="list-style-type: none"> ▪ Supply control – control the availability of alcohol (e.g. regulation and enforcement; taxation) <p>Other:</p> <ul style="list-style-type: none"> ▪ Problem limitation – strategies that are aimed at reducing the problems stemming from the use of alcohol; treatment. <p>Aim:</p> <ul style="list-style-type: none"> ▪ To minimize alcohol-related harm to individuals, families and society. 	<ul style="list-style-type: none"> ▪ New Zealand ▪ Home/ Work/ School/ Road/ Community/ Public place (Licensed venues and other social settings; organized public events; etc) 	<p>Unavailable evidence of effectiveness</p> <p>Reviewers' rating: 3.7</p>
European Alcohol Action Plan 2000-2005 (WHO, 2000) ³⁴	General Principles/ Health Plan / Strategies/ recommendations	<p>Education/Training:</p> <ul style="list-style-type: none"> ▪ Information and education about the harm that can be done by alcohol to the health; mount mass media campaigns; skill-based learning for young people through integrated, holistic health education program; school-based alcohol education integrated into the concept of the health-promoting school and also into local community prevention coalitions. <p>Enactment/ enforcement of legislation/regulations:</p> <ul style="list-style-type: none"> ▪ Law enforcement monitoring (enforcement of drink driving laws; high-visibility random breath testing; 0,05 BAC limit and “zero tolerance” for novice and professional drivers; encourage alternative transportation for those who have consumed alcohol; mandatory education and treatment programs for drink-driving offenders; taxation; lower level of under-age drinking; licensing laws; control the availability and restrict the days and hours of sale; duty-paid stamps on alcohol products; restrict advertising on alcohol products which may appeal in particular to children and young people; restrictions on sponsorship of sports by the drinks industry; strict regulations of events designed to promote alcohol consumption;) <p>Other:</p> <p>Treatment</p> <p>Aim of health plan</p> <ul style="list-style-type: none"> ▪ To prevent and reduce the harm caused by alcohol throughout the European Region. 	<ul style="list-style-type: none"> ▪ EU wide ▪ Home/ Work/ Leisure (drinking environment)/ Public place 	<p>The document outlines effective actions</p> <p>Reviewers' rating: 3.6</p>

Table 2b continued (12)

Title/Author(s)	Type of Policy	Description/Aims	Level of Implementation/ Setting(s) covered	Evidence of Policy's Effectiveness/ Average rating
Strategies To Reduce Underage Alcohol Use: Typology and Brief Overview (Stewart K, The Pacific Institute for Research, 1999) ³⁵	Strategies	<p>Enactment/enforcement of legislation/regulations</p> <ul style="list-style-type: none"> ▪ Enforcement of minimum purchase age laws; Strategies aimed at reducing social availability of alcohol to minors; zero tolerance laws for drivers under 21; sobriety checkpoints; enforcement or impaired driving laws in general; responsible beverage techniques; school policies on alcohol use. <p>Education/ training</p> <ul style="list-style-type: none"> ▪ School-based prevention strategies; prevention curricula. <p>Aim of strategies:</p> <ul style="list-style-type: none"> ▪ To reduce underage alcohol use and the related harm. 	<ul style="list-style-type: none"> ▪ United states ▪ Road/ School/ Road/ Public place (alcohol outlets) 	<ul style="list-style-type: none"> ▪ All mentioned strategies have strong evidence of effectiveness, but they include a large variety of interventions and each one has different level of effectiveness (evidence of effectiveness) <p>Reviewers' rating: 3.4</p>
A Policy on Alcohol for Europe and its Countries Reducing the Harm Done by Alcohol – Bringing the Gap Principles (EUROCARE, 2004) ³⁶	General principles/ strategies	<p>Enactment/enforcement of legislation/regulations</p> <ul style="list-style-type: none"> ▪ Law enforcement monitoring: 0.05 minimum BAC limit; 0.02 BAC limit for novice drivers and professional drivers; unrestricted breath analysis; penalties for drinking and driving. ▪ Regulations of the alcohol market: packaging and labeling ▪ Price and tax measures: tax policies ▪ Restrictions on the availability of alcohol: restrictions on the sale to minors; ban advertising to minors; restrictions to advertising ▪ Drinking environment: free from the injurious, noxious and polluting effects, including noise pollution, that result from alcohol intoxication <p>Education/ training:</p> <ul style="list-style-type: none"> ▪ Driver education, rehabilitation and treatment schemes; university-based programmes and other alternative forms of education; appropriate training or sensitization and awareness programmes on alcohol policy to persons such as health workers, community workers, social workers, media professionals, educators, decision-makers, administrators and other concerned persons; <p>Aim:</p> <ul style="list-style-type: none"> ▪ To reduce the harm done by alcohol consumption 	<ul style="list-style-type: none"> ▪ EU Wide ▪ Road/ School/ public place (alcohol outlets)/ Community 	<p>The document outlines effective actions</p> <p>Reviewers' rating: 3.4</p>
Alcohol-related injury and young males (Steenkamp et al, 2002) ³⁷	Strategies	<p>Promotion/awareness raising:</p> <ul style="list-style-type: none"> ▪ Publicity of random screening; increased anti-driving publicity; training of riders; awareness training for drivers <p>Law enforcement monitoring:</p> <ul style="list-style-type: none"> ▪ Increased randomized breath testing checkpoints; high visible police activities; increased penalties; designated drivers; low BAC limits for young and novice drivers-“zero tolerance” laws; graduated licenses-number of passengers, nighttime curfews; administrative per se laws for repeated offenders; ignition interlock devices; improving conspicuity; restrictions of alcohol availability and serving hours; responsible beverage serving. <p>Other:</p> <p>Brief interventions (counseling, information, advice targeting to reduce alcohol consumption)</p> <p>Aim of strategies:</p> <ul style="list-style-type: none"> ▪ The aim is to create a deterrence effect and modify individual's behavior. 	<ul style="list-style-type: none"> ▪ International ▪ Leisure/ Road/ Community/ Health and social care 	<p>The document outlines effective actions</p> <p>Reviewers' rating: 3.8</p>

Table 2b continued (13)

Title/Author s	Type of Policy	Description/Aims	Level of Implementation/ Setting(s) covered	Evidence of Policy's Effectiveness/ Reviewers' rating
The National Program of Prevention and Resolving Alcohol-Related Problems (Council of Ministers) ³⁸	Strategies	<p>Product modification:</p> <ul style="list-style-type: none"> ▪ Fiscal policy reducing and changing the structure of alcoholic beverages consumption by adults. <p>Education/training:</p> <ul style="list-style-type: none"> ▪ Propagation educational programs of school, family and community prevention; Public education; Training professionals; Increasing awareness as well as the ethical and legal responsibility of persons involved in the production and sale of alcoholic beverages, also ensuring strict quality control of such products. <p>Law enforcement:</p> <ul style="list-style-type: none"> ▪ Increased taxation; controlled availability-not sell alcohol beverages to young people under 18 years- controls on hours and days of sale of alcohol, numbers of alcohol outlets, and restrictions on access; restrictions to suppliers; health warning label legislation; ban advertising targeted to young people; designated driver programs; ▪ 0.08% BAC limit; license suspension; code of packaging; Supervising compliance with legal procedures of control over harmful behaviors of unsobber persons; Supervising compliance with legal procedures of control of trade in alcoholic beverages; Supporting development of Local Self-government-level programs for prevention and resolving of alcohol problems; Studying and monitoring issues and resources in the area of alcohol problems and analyzing the economic and social costs. <p>Aim of strategies:</p> <ul style="list-style-type: none"> ▪ Preventing the emergence of new alcohol-related problems, reducing the gravity of the existing problems and increasing the resources necessary for address the existing problems. 	<ul style="list-style-type: none"> ▪ Poland ▪ Home/ Work/ School/ Health and social care/ community/ public place/ Other (industries) 	<p>Unavailable evidence of effectiveness</p> <p>Reviewers' rating: 3.1</p>
The Nation's New Strategy to Stop Impaired Driving (National Highway Traffic Safety Administration) ³⁹	Strategies	<p>Enactment/enforcement of legislation/ regulations:</p> <ul style="list-style-type: none"> ▪ High visibility enforcement programs. <p>Other:</p> <p>Alcohol screening and brief interventions; support for prosecutors and DWI courts.</p> <p>Aim of strategies:</p> <ul style="list-style-type: none"> ▪ The National Highway Traffic Safety Administration has identified three priority initiatives to help to reduce driving while impaired (DWI). Implementation of these initiatives will support and involve active participation by law enforcement, prosecutors, courts, and medical and health care professionals. The objective is to reduce the number of 17400 to 2000 in alcohol related fatalities by the end of 2004. 	<ul style="list-style-type: none"> ▪ United States ▪ Community/ public place (health care centres) 	<p>Unavailable evidence of effectiveness</p> <p>Reviewers' rating: 3.1</p>

4) Recommendations

Table 2b continued (15)

Title/Author(s)	Description/Aims	Level of Implementation/ Setting(s) covered	Evidence of Policy's Effectiveness/ Average rating
Strategic Task Force on Alcohol (Department of Health and Children) ⁴²	<p>Enactment/Enforcement of legislation/regulations</p> <ul style="list-style-type: none"> ▪ Alcohol availability: National ID card scheme; demand the age card for the purchase of alcohol by young people; Maintain licensing measures; Higher rates of taxes) ▪ Drink drink-driving countermeasures: Introduce random breath testing and promote high visibility enforcement; Lower the blood alcohol limit to .50 mg % in line with most other European countries; Lower the blood alcohol limit for provisional drivers to zero. ▪ Drinking environment: Target Hot Spots, by mapping the locations where disturbance and violence Occur; greater enforcement of the laws that prohibit the serving of alcohol to intoxicated customers; Restrict alcohol sales promotions that encourage high risk drinking such as free alcohol, below cost sales promotions and 'happy hours; Mandate the Responsible Serving of Alcohol program as a condition of license renewal. ▪ Protect children and reduce pressure on adolescents to drink: Limit alcohol advertisements; Age appropriate content of alcohol advertisements for children or adolescents; Ban drinks industry sponsorship of children and adolescents' leisure-time activities; monitoring mechanism to ensure compliance with codes and regulations; promote alcohol-free sporting environments; restrict children at certain times and circumstances from licensed premises. ▪ Education: Raise awareness of alcohol issues and promote a greater understanding of the importance of public health alcohol policy; develop the delivery of information and skills in the school and out of school setting; Expand the provision of alcohol policy developments for out-of-school settings and develop support mechanisms for the implementation and monitoring of such policies; Discourage high risk drinking for those who wish to consume alcohol; Expand appropriate health and social services to provide for people who experience problems as a result of other people's or their own drinking. <p>Aim of strategic recommendations:</p> <ul style="list-style-type: none"> ▪ Reducing rates of alcohol-related problems both to the drinker and to others: (1)To reduce total alcohol consumption at the population level to the EU average; (2)To reduce harmful consumption of alcohol at an individual level, especially binge drinking and regular heavy drinking; (3)To provide greater protection for children and adolescents from the pressures to drink; (4)To prevent and reduce the risk of alcohol related harm on the roads; (5)To prevent and reduce the risk of alcohol related harm in the drinking environment. 	<ul style="list-style-type: none"> ▪ Ireland ▪ Road/ public place (alcohol outlets)/ School 	<p>Not evaluated</p> <p>Reviewers' rating: 3.8</p>

Table 2b continued (16)

Title/Author(s)	Description/Aims	Level of Implementation/ Setting(s) covered	Evidence of Policy's Effectiveness/ Average rating
<p>Discussion Paper on the EU Strategy on Alcohol (DG SANCO)⁴³</p>	<p>Environmental modification</p> <ul style="list-style-type: none"> ▪ Implement alcohol free settings such as in schools <p>Education/ Promotion/awareness raising:</p> <ul style="list-style-type: none"> ▪ Training and awareness programs for parents, social workers, teachers and young people; labeling information and labeling of ingredients; server training; screening and brief advice programs <p>Law enforcement monitoring:</p> <ul style="list-style-type: none"> ▪ Non-governmental organizations monitoring the implementation of existing laws and practices; monitoring marketing strategies of alcohol industry and enforcement of regulatory mechanisms; <p>Drink-driving countermeasures:</p> <ul style="list-style-type: none"> ▪ Low BAC levels, unrestricted breath testing, high enforcement and treatment programs for repeat offenders; Reduce under-age drinking, especially by: reducing high risk drinking, such as binge drinking, and establishing a lowest minimum purchase age of 18 years; <p>Alcohol availability:</p> <ul style="list-style-type: none"> ▪ Limiting hours and days of sale, coordination of public transport and closing times; Effective and timely enforcement of existing minimum purchase age limits and alcohol licensing regulations and rules; effective pricing policies and taxation; server liability; reduce exposure to marketing and commercial communication to young people; Alcohol license enforcement. <p>Other:</p> <ul style="list-style-type: none"> ▪ Strengthening the implementation of Article 15 of the TV Without Frontiers Directive <p>Aim of the strategy:</p> <ul style="list-style-type: none"> ▪ To protect European citizens from the health and social harm done by alcohol. The Union has set a goal to halve the number of people killed on European roads from 40,000 people in the year 2000 to 20,000 people by the year 2010. 	<ul style="list-style-type: none"> ▪ EU wide ▪ Work/ public place Health and social care/ School/ Other (beverage alcohol industry) 	<p>Unavailable evidence of effectiveness but the document outlines effective actions</p> <p>Reviewers' rating: 3.4</p>
<p>Drinking of alcohol by young people (European Council Recommendation 2001/458/EC)⁴⁴</p>	<p>Education:</p> <ul style="list-style-type: none"> ▪ Multi-sectorial education targeted to young people about alcohol involving; production of advisory materials for children, adolescents and parents; initiatives addressed to young people on the dangers of drink-driving; specific training for servers and sales persons; allow manufacturers, promoters, etc. to get pre-launch advice. <p>Material monitoring/inspection (take action against the illegal sale of alcohol to under-age consumers; ensure that producers do not produce alcoholic beverages specifically targeted at children and adolescents; ensure that alcoholic beverages are not designed or promoted to appeal to children and adolescents; examining and recalling products which do not respect the principles mentioned above;)</p> <p>Aim of recommendations:</p> <p>To encourage the Member States and the players concerned to develop mechanisms designed to address the problems caused by alcohol abuse among young people. Specifically, the purpose of the recommendation is to sensitize all levels of society to the dangers of alcohol abuse among young people, including manufacturers and retailers of alcoholic beverages, as well as parents. It also addresses the different aspects of the problem, from irregular binge-drinking to alcohol dependency among young people. Via this recommendation, the Council encourages a common approach to this problem within the Community.</p>	<ul style="list-style-type: none"> ▪ EU wide ▪ School/ Leisure/ public place Health and social care/ Other (industries) 	<p>Unavailable evidence of effectiveness but the document outlines effective actions</p> <p>Reviewers' rating: 3.0</p>

Conclusions

The area where the most of preventive activities have usually taken place is drunk driving, an area where behaviour under the influence of alcohol also has consequences for others than the drunk person him- or herself.

Legge (1990b) studied the impact of the deterrence-based reform of driving under influence (DUI) laws in New York concluding that the increased penalties resulting from the legislation approved in 1981 had a long-term effect on the reduction of fatalities. More rigorous law enforcement and an increased certainty of both conviction and financial punishment are presented as the reason. This package of legislation included "...immediate and automatic suspension of the license if two or more alcohol-related driving violations occur within three years; a mandatory fine of \$250 (\$350 if over the .10 blood alcohol limit) and the possibility of prison for the first offence..." (Legge, 1990b: 374).

The literature suggests that a primary condition necessary for an effective alcohol policy is the construction and implementation of a national strategy. For policies to be effective, a mixture of approaches is needed involving all the concerned sectors, for example legislators, educators, alcohol producers and information providers, such as the mass media. Evidence shows the most effective approach is to implement a combination of: increases in alcohol prices, reduction in the availability of alcohol, and measures against drunk driving and underage drinking. Other control interventions such as altering the drinking context, education and persuasion, regulating alcohol promotion, and regulating the premises for alcohol consumption are limited in their impact. Public and school-based education programmes can promote knowledge and awareness of alcohol issues, but evidence supporting their efficacy to change attitudes and behaviour is, as yet, less conclusive. Efforts to assess the effect of mass media campaigns on drinking behaviour have generally failed to detect significant effects on consumption as a consequence of exposure to these campaigns.

Alcohol policies rarely operate independently of other measures. Complementary system strategies that seek to restructure the total drinking environment are more likely to be effective than single strategies.

Strong, co-ordinated actions are required to prevent the considerable public health consequences associated with inappropriate alcohol consumption. However, alcohol is also part of our culture and it could take time to reduce alcohol-related harm.

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2. Road traffic injuries

A total of 70 Policy documents, aiming at reducing road traffic injuries, were retrieved and further reviewed. Of these 39 fulfilled all inclusion criteria and 16 were characterised as promising.

Breakdown of gathered road traffic policies

	N
Gathered	70
Included papers	39
To be further reviewed (promising)	16
Excluded papers	15
Other date of publish	2
No specific policy statement included	8
Limited information provided about the policy	4
Consultation paper	1

Taking the body of Policy Papers as a whole, our conclusions relating to the published evidence of efficacy of policies designed to prevent road traffic injuries are summarized in Table 3. Overall, there was:

Table 3a. Road traffic policies

Policy	Description	Level of Effectiveness
Environmental modification	<ul style="list-style-type: none"> ○ Road infrastructure: improving the safety of the design or operation of the road and rail network ○ Road signs and markings; guard rails; rumble strips; guideline to prevent wrong-way driving; improve visibility at crossings; road lighting; median barriers; roundabouts ○ Creation of more 20mph zones with suitable traffic calming and parking restrictions, around schools at opening and closing times; safe crossing facilities on busy roads; child friendly areas on trunk roads which go near schools and in residential areas; improved signage and road markings near to schools ○ Tunnel safety-ventilation, illumination, emergency escapes, clear tunnel entrances ○ Motorway roadwork zones; improve and extend the network of footpaths, cycle paths and bridle paths ○ Road-side Telematics ○ Reflective contour markings ○ Road hierarchy; separated roadways for agricultural vehicles and unprotected road users ○ Improved transport systems ○ Landscaping and central island treatments 	Evidence of effectiveness
Vehicle modification	<ul style="list-style-type: none"> ○ Safer vehicles; vehicle safety standards ○ Speed detectors ○ Passive vehicle safety - participation in EuroNCAP, pedestrian friendly car fronts 	Evidence of effectiveness

Table 3a. Road traffic policies (continued)

Policy	Description	Level of Effectiveness
<p>Education/training:</p> <p>Awareness raising and capacity building</p>	<ul style="list-style-type: none"> ○ Community programs and education campaigns regarding proper use of child occupant restraints and sitting in the rear ○ Awareness building campaigns for following distances, driving speeds, use of seat belts and helmets through media (advertising campaigns) ○ Establish a statewide publicity program that emphasizes high visibility enforcement for occupant protection ○ Greater use of both widespread and targeted intelligence-based enforcement campaigns (coordinated with public information programs) ○ Promote awareness of the effects of: <ul style="list-style-type: none"> ▪ Drink, drugs and drowsiness on driving ability ▪ Excessive speeding ▪ Hazards of fatigue ▪ Driving whilst using a mobile phone ○ Education programs/training of community-groups: <ul style="list-style-type: none"> ▪ Drivers/ Motorcyclists/ Bus drivers ▪ Vulnerable road users (children, pedestrians, elderly) ▪ Novice drivers ▪ Professionals and consumers ▪ Parents ▪ Police staff 	<p>Evidence of effectiveness</p>
<p>Drink driving countermeasures</p>	<ul style="list-style-type: none"> ○ 0.02 alcohol laws for teens; zero tolerance laws for drivers under 20 yrs ○ Administrative license revocation for DUI offenders ○ Lower BAC-limit to 0.5 or 0.2 mg/ml; 0.2 BAC levels for teens ○ RBT for alcohol and alcohol checkpoints; Quick-testing breath analyzers ○ 17 yrs minimum driving age ○ IID for drinking drivers ○ License suspension; stricter licensing conditions; ban driving under the influence of drugs; penalties for excess drinking 	<p>Evidence of effectiveness</p>
<p>Law Enforcement</p>	<ul style="list-style-type: none"> ○ Primary and secondary enforcement of seat belt legislation, helmet legislation, speed limits (speed cameras; red light cameras; automated camera systems with permanent installations), alcohol limits and occupant restraint use ○ Traffic legislation and enforcement concerning speed zones, driving under the influence of alcohol, seat belts, motorcycle helmets and penalty points systems ○ Compulsory seat belt use; compulsory fitting of seat belts in new buses and coaches ○ Introduce maximum speed limits according to road hierarchy designation (60mph on strategic routes; 70mph on Mountain Road; 50 km/h in urban areas and 30km/h in residential areas) ○ Stricter Penalty points (higher minimum fines for disobeying pedestrian priority on crossings; Penalty point driving license endorsements; Impoundment of vehicles) ○ Enforcement of driving and rest periods by the police and introduction of the Digital Tachograph (increased roadside technical checks of heavy vehicles) ○ Daytime Running Lights (DRL) ○ Parking restrictions ○ Railroad crossing regulations; restriction on heavy lorry passing on motorways; measures against moped-tuning and imported irregular vehicles 	<p>Evidence of effectiveness</p>

Table 3a. Road traffic policies (continued)

Policy	Description	Level of Effectiveness
	<ul style="list-style-type: none"> ○ Dangerous goods transport regulation; checks on carriage of license ○ On-road enforcement of motorcycle road-worthiness 	
Law monitoring/surveillance	<ul style="list-style-type: none"> ○ Road Safety Audit / Road Safety Inspection ○ Automatic speed surveillance; Upgrading pre-existing data sources for surveillance ○ Accident data recorders; road safety data systems ○ Monitor road maintenance performance ○ Video-techniques to monitor rear-end crashes and enforcement on specific conditions such as adverse weather ○ Implement an audit process to ensure consistent training and testing standards 	Evidence of effectiveness
	Graduated Driver Licensing System	Limited evidence of effectiveness
	Ban drivers' handheld cell phone use	No evidence of effectiveness

1) Legislation

Table 3b. Summary of Policies to reduce road traffic injuries

Title/Authors	Type of Policy	Description/Aims	Level of Implementation/ Setting(s) covered	Evidence of Policy's Effectiveness/ Reviewers' rating
Traffic Safety Facts Laws: Graduated Driver Licensing System (NHTSA, 2006) ¹	Legislation	<p>Legislation:</p> <ul style="list-style-type: none"> ▪ Graduated Driver Licensing System <p>Aim of legislation:</p> <ul style="list-style-type: none"> ▪ The licensing program consists of three stages, identified at each stage by the type of license: learner's permit, intermediate (provisional) license, and full licensure. Young drivers are required to demonstrate responsible driving behavior at each stage of licensing before advancing to the next level. 	<ul style="list-style-type: none"> ▪ United States ▪ Road 	<ul style="list-style-type: none"> ▪ Evaluations clearly show the benefits of adopting GDL laws and components. Florida's GDL law resulted in a 9-percent reduction in crashes for drivers who were 16 and 17 years old. <p>Reviewers' rating: 3.4</p>
State Traffic Safety: Legislative Summary 2001 (Savage et al. 2002) ²	Traffic safety legislation	<p>The Transportation Equity Act requires that states:</p> <ol style="list-style-type: none"> 1. Pass laws that require seat belt use by front seat passengers in passenger vehicles (and, by 2001, in any seat in the vehicle), 2. Enact primary enforcement legislation, 3. Assess minimum fines and penalty points for violations of seat belt and child seat belt use laws, 4. Establish a statewide publicity program that emphasizes high visibility enforcement for occupant protection, 5. Create a statewide education program about child passenger protection that includes proper seating positions for children in vehicles with air bags, as well as instruction on how to reduce the improper use of child restraint systems, 6. Implement a child passenger protection law that requires minors to be secured in a child safety seat or other appropriate restraint system. Under the act states receive additional funding for adopting illegal per se laws with a .08 blood BAC, or laws dealing with repeat offenders, open containers of alcohol in motor vehicles and other DUI countermeasures. <p>Aim of legislations:</p> <ul style="list-style-type: none"> ▪ To reduce injuries and fatalities resulting from motor vehicle crashes. 	<ul style="list-style-type: none"> ▪ United States ▪ Road 	<p>Not evaluated</p> <p>Reviewers' rating: N/A</p>

Table 3b continued (1)

Title/Authors	Type of Policy	Description/Aims	Level of Implementation/ Setting(s) covered	Evidence of Policy's Effectiveness/ Reviewers' rating
Vulnerable Road User Audit Policy and Procedure (Lancashire Country Council, 2003) ³	States traffic safety legislation	<ul style="list-style-type: none"> ▪ Vulnerable Road User Audit (VRU) is a systematic approach applied to planned changes to the transport network, which is designed to ensure that opportunities to encourage vulnerable road users to use the network are considered comprehensively and that conditions affecting vulnerable road users are not inadvertently made worse. It should be considered at 3 stages of the development of a particular scheme: Concept and Planning stage; Design and Construction Stage; Post Opening to Traffic Stage. <p>Aim of legislation:</p> <ul style="list-style-type: none"> ▪ To increase awareness of the needs of vulnerable road users and ensure that they are adequately taken into consideration and catered for in the design of highway and transport schemes. By developing a transport network that is safe and convenient for vulnerable road users it is hoped to create a more inclusive barrier free transport system. 	<ul style="list-style-type: none"> ▪ EU region (Lancashire) ▪ Road 	<p>Not evaluated</p> <p>Reviewers' rating: N/A</p>
Longer term effects of New York State's law on drivers' handheld cell phone use (McCartt AT, Geary LL, 2004) ⁴	Legislation: ban drivers' handheld cell phone use	<ul style="list-style-type: none"> ▪ In New York, it is a traffic violation, punishable by a \$100 fine, for a driver to talk on a cell phone while the vehicle is moving, unless the driver is placing an emergency call. The law does not apply to hands-free devices; nor does it prohibit manual dialing or using a handheld phone when the vehicle is stopped. The law was implemented in three phases. During November 2001, law enforcement officers could issue verbal warnings. Citations could be issued from 1 December through 28 February 2002, but judges could waive fines for the first offense upon proof of purchase of a headset or speakerphone. Effective 1 March 2002, fines no longer were waived. <p>Aim of legislation:</p> <ul style="list-style-type: none"> ▪ To reduce cell phone use rates while driving. 	<ul style="list-style-type: none"> ▪ New York and two Connecticut communities (Town of Hamden, City of Hartford) ▪ Road 	<ul style="list-style-type: none"> ▪ No targeted enforcement efforts were evident. Vigorous enforcement campaigns accompanied by publicity appear necessary to achieve longer-term compliance with bans on drivers' cell phone use. (no evidence of effectiveness) <p>Reviewers' rating: 3.1</p>
Speed control in developing countries: issues, challenges, and opportunities in reducing road traffic injuries (Afukaar, 2003) ⁵	Regulation: Speed control	<p>Engineering</p> <ul style="list-style-type: none"> ▪ Environmental modification: rumble strips; speed humps; roads that segregate high- and low-speed users; narrowed areas; narrowings and staggerings; ▪ Product modification: speed control gadgets like speed governors in vehicles <p>Greater public awareness Enforcement of legislation /regulations</p> <ul style="list-style-type: none"> ▪ Enforcement of speed limits by traffic police: speed-check zones; parked patrol vehicles; police presence at known accident black spots. <p>Aim of regulation:</p> <ul style="list-style-type: none"> ▪ To reduce vehicle speeds in order to reduce road traffic injury, crashes and fatalities. Speed control is one of the traffic regulatory measures that aims to ensure harmony in the interactions between vehicles and road enforcement. 	<ul style="list-style-type: none"> ▪ Ghana ▪ Road 	<ul style="list-style-type: none"> ▪ Police enforcement has shown to have an effect in decreasing speeds. The success of police enforcement in changing human behavior depends on the ability to create deterrence. Rumble strips and speed humps have been found to be effective and are simple and cost-effective to install. Political support is needed and public awareness, education and publicity campaigns for safer speeds. (strong evidence of effectiveness) <p>Reviewers' rating: 4.4</p>

Table 3b continued (3)

Title/Authors	Type of Policy	Description/Aims	Level of Implementation/ Setting(s) covered	Evidence of Policy's Effectiveness/ Reviewers' rating
Effectiveness of Graduated Driver Licensing in Reducing Motor Vehicle Crashes (Foss RD, Evenson KR, 1999) ⁶	Legislation: Graduated Driving Licensing; nighttime curfews	<ul style="list-style-type: none"> ▪ The Graduated Driving Licensing (GDL) includes three stages or levels: Learner, Intermediate, and Full. (1) <u>Learner level constraints on drivers</u>: Supervision when driving by a parent, guardian, or other licensed adult age 21 or older; Seat belt use by all vehicle occupants riding with the novice driver; Maintenance of a conviction-free driving record for at least 6 continuous months to graduate to the Intermediate level. (2) <u>Intermediate level constraints on drivers</u>: Supervision while driving between the hours of 10 p.m. and 5 a.m.; Seat belt use by all vehicle occupants; Maintenance of a conviction-free driving record for at least 6 continuous months to graduate to Full License level. (3) <u>Full License level constraints on drivers</u>: None other than adherence to all existing traffic laws (which applies at all levels) <p>Aim of law:</p> <ul style="list-style-type: none"> ▪ To reduce motor vehicle crashes, fatalities, or injuries among young drivers through GDL systems and nighttime curfews. Generally aim to limit risk and promote safe driving practice during the early phases of licensed driving. 	<ul style="list-style-type: none"> ▪ New Zealand ▪ Road 	<ul style="list-style-type: none"> ▪ There is insufficient evaluation data on graduated driver licensing programs to assess whether a reduction in crashes, injuries, or fatalities can be expected as a result of such programs. Only one evaluation conducted in New Zealand which shows positive results, but further research is needed. <p>(some evidence of effectiveness-further research needed)</p> <p>Reviewers' rating: 3.7</p>
Systematic Reviews of Strategies to Prevent Motor Vehicle Injuries (Rivara et al. 1999) ⁷	Legislation	<p>Education /Training</p> <ul style="list-style-type: none"> ▪ Promotion/awareness raising: community programs and education campaigns regarding to proper use of child occupant restraints and sitting in the rear; driver education programs; GDL programs for inexperienced drivers. <p>Enactment /enforcement of legislation /regulations:</p> <ul style="list-style-type: none"> ▪ Primary and secondary enforcement of seat belt legislation; 0.02 alcohol laws for teens; Administrative license revocation for DUI offenders; RBT for alcohol and alcohol checkpoints; Ignition interlock devices for drinking drivers. <p>Aim of legislative measures:</p> <ul style="list-style-type: none"> ▪ To reduce mortality and morbidity from motor vehicle-related trauma. The study reviews strategy interventions for the prevention of motor vehicle injuries in the areas of occupant protection, driver training and licensing, and alcohol-related interventions. 	<ul style="list-style-type: none"> ▪ N/A ▪ Road/ School 	<ul style="list-style-type: none"> ▪ According to the authors these strategies seem to be effective. <p>Reviewers' rating: N/A</p>

Table 3b continued (4)

Title/Authors	Type of Policy	Description/Aims	Level of Implementation/ Setting(s) covered	Evidence of Policy's Effectiveness/ Reviewers' rating
Traffic enforcement in Europe: effects, measures, needs and future (ESCAPE) ⁸	Legislation: Traffic law enforcement	<p>Road infrastructure modification:</p> <ul style="list-style-type: none"> ▪ Road humps; small roundabouts; traffic signals; intelligent speed limiters; ignition interlocks; treatment of black spots; improvement of in-vehicle technology, <p>Education /Training:</p> <ul style="list-style-type: none"> ▪ Education efforts to increase awareness of the use of seat belts and child restraints, <p>Enactment /enforcement of legislation /regulations</p> <ul style="list-style-type: none"> ▪ Traffic law enforcement: automated camera systems with permanent installations; non-police organizations in enforcement; random or quasi-random breath screening tests. <p>Aim of enforcement:</p> <ul style="list-style-type: none"> ▪ To impress individuals that the likelihood being detected is high and that punishment is inevitable. 	<ul style="list-style-type: none"> ▪ EU wide ▪ Road 	<ul style="list-style-type: none"> ▪ Increased enforcement may have reduced injury accidents by an average of 6% to 17%. Furthermore, it is cost effective to increase all types of enforcement. Enforcement based on deterrence is cost-effective. <p>Reviewers' rating: N/A</p>
Effectiveness of primary and secondary enforced seat belt laws (Rivara et al. 1999) ⁹	Legislation	<p>Enactment / enforcement monitoring of legislation /regulations:</p> <ul style="list-style-type: none"> ▪ Primary and secondary enforcement laws (Primary enforcement laws are those that allow a law enforcement official to stop a vehicle and issue a citation solely because an occupant is not restrained. Secondary enforcement laws are those that allow a citation to be issued for failure to use a seat belt only when the vehicle is stopped for another offense). <p>Aim of law enforcement:</p> <ul style="list-style-type: none"> ▪ Primary and secondary enforced motor vehicle occupant restraint laws target to increase restraint use and reduce rates of deaths and serious injuries. 	<ul style="list-style-type: none"> ▪ International ▪ Road 	<ul style="list-style-type: none"> ▪ Primary enforcement laws are likely to be more effective than secondary laws. <p>Reviewers' rating: 3.8</p>
Traffic calming policy can reduce inequalities in child pedestrian injuries: database study (Jones et al. 2005) ¹⁰	Legislation: area wide traffic calming policy	<p>Engineering/ Environmental modification</p> <ul style="list-style-type: none"> ▪ Speed humps, road narrowings, road closures. ▪ Traffic calming measures, particularly in UK, include: positive physical controls, such as speed humps, road narrowings, road closures, speed cushions and painted road sections. <p>Aim of legislation:</p> <ul style="list-style-type: none"> ▪ Traffic calming measure aims to reduce traffic speed and volumes and therefore road traffic related injuries. 	<ul style="list-style-type: none"> ▪ Two cities in the United Kingdom ▪ Road 	<ul style="list-style-type: none"> ▪ Area wide traffic calming is associated with absolute reductions in child pedestrian injury rates and reductions in relative inequalities in child pedestrian injury rates <p>Reviewers' rating: 3.6</p>

Table 3b continued (5)

Title/Authors	Type of Policy	Description/Aims	Level of Implementation/ Setting(s) covered	Evidence of Policy's Effectiveness/ Reviewers' rating
Daytime running lights: A systematic review of effects on road safety (Elvik et al. 2003) ¹¹	Legislation	<ul style="list-style-type: none"> ▪ The policy requires drivers to turn on headlights during daytime or requires new cars to have automatic DRLs, using low beam headlights as DRLs. <p>Aim of legislation:</p> <ul style="list-style-type: none"> ▪ To reduce road traffic injuries. 	<ul style="list-style-type: none"> ▪ N/A ▪ Vehicles 	<ul style="list-style-type: none"> ▪ DRL has the greatest effects on the most severe accidents. ▪ Reviewers' rating: 4.2
Evaluation of Motorcycle Helmet Law Repeal In Arkansas and Texas (Preusser et al, 2000) ¹²	Legislation	<ul style="list-style-type: none"> ▪ Repeal of law (universal helmet law repeal): Each state revised its law to require helmet use only for certain motorcycle riders. Arkansas required helmet use only for riders under age 21. Texas required helmet use only for riders under age 21 and for older riders who have not completed a rider education course or who do not have at least \$10,000 medical insurance coverage. 	<ul style="list-style-type: none"> ▪ Arkansas/ Texas ▪ Road 	<ul style="list-style-type: none"> ▪ Helmet use dropped substantially after they repealed their universal helmet use laws. Fatalities have increased in both states. There is also good evidence that serious head injuries increased. (Universal helmet laws are effective) ▪ Reviewers' rating: 2.2
Mandatory helmet legislation and children's exposure to cycling (Macpherson et al. 2001) ¹³	Legislation	<ul style="list-style-type: none"> ▪ Mandatory bicycle helmet legislation 	<ul style="list-style-type: none"> ▪ Ontario ▪ Road 	<ul style="list-style-type: none"> ▪ Legislation has been shown to be effective in increasing helmet use rates. But mandatory bicycle helmet legislation had made a debate. This study provides evidence that the introduction of mandatory helmet legislation does not lead to reduced exposure to cycling. Reviewers' rating: 2.6
Public policy and highway safety: a city-wide Perspective (McCarthy, 1999) ¹⁴	Laws	<ul style="list-style-type: none"> ▪ Highway speed limits; seat belt use laws; the availability of alcohol; restrictions on the common site sale of gasoline and alcohol; traffic enforcement. <p>Aim of laws:</p> <ul style="list-style-type: none"> ▪ Reduction of fatal accidents 	<ul style="list-style-type: none"> ▪ United States ▪ Road 	<ul style="list-style-type: none"> ▪ Traffic enforcement and speeding arrests appear to have a larger beneficial effect on fatal accidents than those for drinking and driving. ▪ There is little effect from speed limit and seat belt use laws. ▪ Increasing the number of alcohol licenses leads to more fatal accidents. ▪ Banning the common site sale of alcohol and gasoline increases fatal accidents in incorporated cities outside metropolitan statistical areas but little effect elsewhere.

2) Health Plan/ Strategies

Table 3b continued (6)

Title/Authors	Type of Policy	Description/Aims	Level of Implementation/ Setting(s) covered	Evidence of Policy's Effectiveness/ Reviewers' rating
ACT Road Safety, Action Plan, 2005 – 2006 (NRMA – ACT Road Safety Trust, 2005) ¹⁵	National Action Plan	Environmental modification: <ul style="list-style-type: none"> ▪ Black spot treatments; road markings, road furniture and road maintenance; upgrade safety-related road improvement and maintenance programs including the use of the Traffic Warrant System; allocation of red light cameras. Education /Training: <ul style="list-style-type: none"> ▪ Road safety education in ACT schools; Safe driving reminders; Television advertising; Driver training; Motorcycle training and education campaigns. Enactment/ enforcement of legislation/regulations: <ul style="list-style-type: none"> ▪ Speed enforcement on high volume roads, and other roads with high crash rates; enforcement campaigns targeting unsafe behaviors. Aim of strategy: <ul style="list-style-type: none"> ▪ To reduce deaths and injuries on Australian Capital Territory (ACT) roads. 	<ul style="list-style-type: none"> ▪ Australia ▪ Road/ School 	Not evaluated Reviewers' rating: 2.6
Road Safety Strategy: Government Strategy for Road Safety 2004-2006 (Department of Transport) ¹⁶	National Health Plan/ Strategies	Road engineering measures: <ul style="list-style-type: none"> ▪ Traffic calming measures; remedial measures; road safety audits; land use planning. Education/training: <ul style="list-style-type: none"> ▪ Promotion/awareness raising: public awareness campaign on seat belt wearing, on the metrification of speed limits; new cycle safety leaflet aimed at children to be distributed; motorcyclists training; Enactment/ enforcement of legislation: <ul style="list-style-type: none"> ▪ Traffic cameras; speed limits enforcement program; drink driving enforcement program; compulsory seat belt use. Legislative measures: <ul style="list-style-type: none"> ▪ Primary legislation: revised speed limit structure; random breath testing and low BAC; Improvement of the penalty points system; compulsory initial practical training for motorcyclists; Provide a legal basis for control of use of mobile phones by drivers; Driver testing; ▪ Secondary legislation: "pedestrian friendly" vehicle fonts according to EU Directive; licensing regulations; provide requirements for motorcyclists with provisional licences to display L-plates; on-the-spot fines for licensing and tachograph offences by heavy goods vehicles and buses. Other: <ul style="list-style-type: none"> ▪ Road safety research program; ensuring safer vehicles. Aim of strategies: <ul style="list-style-type: none"> ▪ Primary target: to achieve a reduction of 25% on the average number of road deaths by the end of 2006. This means that the number of road deaths in that year will not exceed 300. If this is achieved, it will result in over 100 lives being saved over the lifetime of the Strategy. 	<ul style="list-style-type: none"> ▪ Ireland ▪ Road/ School 	Not evaluated Reviewers' rating: N/A

Table 3b continued (7)

Title/Authors	Type of Policy	Description/Aims	Level of Implementation/ Setting(s) covered	Evidence of Policy's Effectiveness/ Reviewers' rating
Northern Territory, Road Safety Strategy, 2004-2010 (NT Road Safety Council and Northern Territory Government) ¹⁷	Health Plan: Local Strategy	<p>Priorities of the Strategy include:</p> <ul style="list-style-type: none"> - Safer road network, safer road users: improving road user behavior and encouraging alternatives to motor vehicle use, - Safer vehicles: advocating and supporting new technological features in vehicles to enhance occupation protection, - Effective emergency response: better access to crash sites, particularly in remote locations. - Education /Training: driver training, activities targeting to community behavior change. <p>Aim of strategy:</p> <ul style="list-style-type: none"> ▪ Primary target: to reduce fatalities to no more than 15 per 100 000 of the population in 2010, over 40 percent reduction on current levels. 	<ul style="list-style-type: none"> ▪ Northern Territory (Australia) ▪ School/ Road 	<p>Not evaluated</p> <p>Reviewers' rating: 2.4</p>
Tomorrow's roads: safer for everyone. The Government's road safety strategy and casualty reduction targets for 2010 (London Department of the Environment, Transport and the Regions) ¹⁸	Health Plan: National Strategy/ Action Plan	<p>Environmental modification:</p> <ul style="list-style-type: none"> ▪ child road safety audits; create more 20mph zones with suitable traffic calming and parking restrictions, around schools and in residential areas: safe crossing facilities on busy; child friendly areas on trunk roads which go near schools and in residential areas; 'Home Zone' schemes; in-car design taking special account of children; standardizing child restraint fittings; safer car fronts; lorry's better brakes. <p>Education/training:</p> <ul style="list-style-type: none"> ▪ Promotion/awareness raising: national advertising campaign for seat belt wearing; pedestrian training; encourage schools to teach road safety; parent's training; road safety education in schools; helmet use promotion; training of bus drivers; safety material via internet; training logbook for learner car drivers and practice driving in the dark; more information and advice, and encourage refresher courses for older drivers; publicize the dangers of driving whilst using a mobile phone. <p>Enactment/enforcement of legislation/regulations:</p> <ul style="list-style-type: none"> ▪ Law enforcement monitoring: use of cameras on busy roads; compulsory fitting of seat belts in new buses and coaches; enforcement of speed, parking and other restrictions; changes of legislation about school crossing patrols; encourage greater take-up of the voluntary P-plate schemes and consult on introducing a compulsory probationary P-plate scheme in the longer term; Set national standards for advanced driver training. <p>Aim of the strategy:</p> <ul style="list-style-type: none"> ▪ By 2010 to reduce deaths and serious injuries overall by 40% – and by 50% for children – and 10% reduction in the slight casualty rate -all compared to the 1994-1998 average 	<ul style="list-style-type: none"> ▪ UK ▪ School/ Road 	<p>It is a comprehensive road safety strategy. The 3 year review found significant reductions in children killed or seriously injured, and pedestrian and cyclist injuries of all severities for adults and children. However the number of all road fatalities had levelled off, the number of drink driving related accidents had increased.</p> <p>Reviewers' rating: 3.6</p>

Table 3b continued (8)

Title/Authors	Type of Policy	Description/Aims	Level of Implementation/ Setting(s) covered	Evidence of Policy's Effectiveness/ Reviewers' rating
The National Road Safety Strategy 2001-2010 (Australian Transport Safety Bureau) ¹⁹	Health Plan: National Strategy plan	<p>Engineering:</p> <ul style="list-style-type: none"> ▪ Environmental modification: treatment of black spots; land-use planning that reduces the amount of transport necessary for people and goods; Road safety audits; use of technology to reduce human error; improved transport systems) <p>Education/ Training:</p> <ul style="list-style-type: none"> ▪ Novice driver training and licensing (increased supervised driving practice); expanding school-based learning initiatives and competency-based continuous assessment programs; developing programs focusing on cognitive skills such as hazard perception and conflict prediction; parents' education; school-based education; promotion of the benefits of transport, walking / cycling <p>Enactment /Enforcement of legislation/regulations:</p> <ul style="list-style-type: none"> ▪ Law enforcement monitoring [Greater use of both widespread and targeted intelligence-based enforcement campaigns (coordinated with public information programs), effective cross-border operations (especially in relation to interstate heavy-vehicle operators) and enhanced activities in rural areas; enforcement of speed controls, alcohol limits and restraint use; lower speed limits] <p>Other: Improved medical services; research of safety outcomes; expansion of telecommuting.</p> <p>Aim of strategy plan:</p> <ul style="list-style-type: none"> ▪ To dramatically reduce death and injury on Australian roads. The target is to achieve a 40% reduction in the number of fatalities per 100,000 population, from 9.3 in 1999 to no more than 5.6 in 2010, through pursuit of the following strategic objectives: improve road user behavior; improve the safety of roads; improve vehicle compatibilityⁱⁱⁱ and occupant protection; use new technology to reduce human error; improve equity among road users; improve trauma, medical and retrieval services; improve road safety policy and programs through research of safety outcomes; and encourage alternatives to motor vehicle use. 	<ul style="list-style-type: none"> ▪ Australia ▪ School/ Road 	<p>Not evaluated but the document outlines effective actions in order to achieve the objectives</p> <p>Reviewers' rating: 3.2</p>

ⁱⁱⁱ Compatibility involves differences in vehicle characteristics between passenger cars and light trucks and vans (LTVs) such as weight, height off the ground, geometry and stiffness.

Table 3b continued (9)

Title/Authors	Type of Policy	Description/Aims	Level of Implementation/ Setting(s) covered	Evidence of Policy's Effectiveness/ Reviewers' rating
Road Safety to 2010 (Transit New Zealand, 2003) ²⁰	Health Plan: Strategy	<p>Engineering:</p> <ul style="list-style-type: none"> ▪ Crash Reduction Study Program; Road Surface Skid resistance program (SCRIM); Roadside clear zones, clearing vegetation, improving road markings, signage and visibility at intersections; Median barriers on busy motorways; Frontal impact systems (including safety belts, airbags); upgrading police equipment including booze buses, marked and unmarked road policing vehicles, laser speed detectors and radars. <p>Education/Training:</p> <ul style="list-style-type: none"> ▪ Widening targeted road safety advertising beyond speeding, drink-driving and safety belts; Graduated driver licensing; implementing a 'novice driver' pilot programme to test potential changes to the graduated driver licensing system for novice drivers; expanding of the RoadSense - Ata Haere in primary and intermediate schools, which integrates road safety education into the everyday curriculum; Community road safety program. <p>Enactment /Enforcement of legislation /regulations:</p> <ul style="list-style-type: none"> ▪ Compulsory breath testing; Speed cameras; Roadside vehicle impoundment; mandatory license suspensions; stricter penalties; Highway Patrol. <p>Aim of strategy:</p> <ul style="list-style-type: none"> ▪ The strategy aims to reduce road casualties to no more than 300 deaths and 4,500 hospitalizations a year by 2010. These objectives are: (1) assisting economic development, (2) assisting safety and personal security, (3) improving access and mobility, (4) protecting and promoting public health, (5) ensuring environmental sustainability. 	<ul style="list-style-type: none"> ▪ New Zealand ▪ School/ Road/ vehicles 	<p>Not evaluated</p> <p>Reviewers' rating: 3.7</p>

Table 3b continued (10)

Title/Authors	Type of Policy	Description/Aims	Level of Implementation/ Setting(s) covered	Evidence of Policy's Effectiveness/ Reviewers' rating
<p>Promoting a Safe Environment: Road Safety Initiative 2004-2007 Tomorrow's Roads – Safer for Everyone (Department of Transport, 2004)²¹</p>	<p>Strategy/ Government plan</p>	<p>Engineering:</p> <ul style="list-style-type: none"> ▪ Environmental modification: safer infrastructure; safety audits on major traffic routes; traffic calming schemes; Safer Routes to Schools; improved signage and road markings near to schools; 20mph speed limits at schools opening and closing times; improve and extend the network of footpaths, cycle paths and bridle paths; safety measures in vehicle design. <p>Education /Training</p> <ul style="list-style-type: none"> ▪ Capacity building: Training and testing of safe driving; Hazard Perception Test; "Staged Tests"; training of all learner riders; practical pedestrian training; provide advice and training to novice riders; Horse Road Safety Training, ▪ Promotion/awareness raising: education and advertising of the effects of drink, drugs and drowsiness on driving ability; publicize the risks of speed; inform motorcyclists about the potential dangers. <p>Enactment /Enforcement of legislation /regulations</p> <ul style="list-style-type: none"> ▪ Reduce BAC concentration limit from 80ml to 50ml; Breath testing; speed management policies; promote and enforce speed limits: speed cameras; increase periodic testing of vehicles; traffic and parking controllers; insurance certificates displayed on the windscreen; increased fines and penalties for serious offenders; impoundment of vehicles; extend the period of "R" plate restriction from 1 year to 2 years; raise the age for passing the practical driving/riding tests to 17; introduce maximum speed limits according to road hierarchy designation with a maximum of 60mph on strategic routes and a maximum of 70mph on Mountain Road. <p>Aim of strategy:</p> <ul style="list-style-type: none"> ▪ To improve the safety of the highway environment and its users. Its objectives are: (1) Introduce speed limits in line with the policy determined in the 2003/4 review; (2) Reduce road traffic accidents, particularly fatal and serious, by 2% per year; (3) Enhance safety in residential areas; (4) Improve the safety of pedestrians on routes to and around schools. 	<ul style="list-style-type: none"> ▪ Isle of Man ▪ School/ Road 	<ul style="list-style-type: none"> ▪ Not evaluated Reviewers' rating: 3.1

Table 3b continued (11)

Title/Authors	Type of Policy	Description/Aims	Level of Implementation/ Setting(s) covered	Evidence of Policy's Effectiveness/ Reviewers' rating
Road Safety in Norway Strategy 2002–2011 (Ministry of Transport and Communications, 2002) ²²	Health Plan: Strategy	<p>Engineering:</p> <ul style="list-style-type: none"> ▪ Environmental modification [Road lighting; Rumbled edge markings; Straightening sharp curves; Improving visibility, better road markings; Guard rails; Removing roadside obstacles (trees and the like); Leveling roadside terrain; Use of forgiving utility poles; Isolating projecting rocks and other obstacles; Providing safe crossings for pedestrians and cyclists, Road safety audits of road plans and existing roads, Improved winter operations), product modification (air bags; safety belts; children's seats; crumple zones etc.)] <p>Education /Training</p> <ul style="list-style-type: none"> ▪ Capacity building (Better training for drivers, Compulsory courses/sessions before starting the driving practice (category B), Compulsory tests at driving schools before taking the driving test, Compulsory first aid training, Further development of motorcycle instruction) <p>Enactment /Enforcement of legislation /regulations</p> <ul style="list-style-type: none"> ▪ Law enforcement monitoring (Penalty point driving license endorsements; 50kph speed limit at built-up areas and 30kph in residential streets; Maximum blood alcohol limit for drivers of 0.2 per thousand; ban driving under the influence of drugs; prohibit use of electronic equipment while driving - hand-held mobile phones; Increased roadside technical checks of heavy vehicles; Increased checks on the use of safety equipment (including seat belts); Automatic speed controls; speed cameras; surveillance such as control of speeding and driving under the influence of alcohol/drugs, use of safety equipment and roadworthiness of heavy vehicles) <p>Primary aims of the strategy: (1) Improving the coordination of road safety work, (2) Safer roads, (3) Measures to regulate behavior, (4) Enforcement, (5) Emphasis on police surveillance, (6) Improved traffic education and information: (Better training for drivers, Compulsory courses/sessions before starting the driving practice (category B), Compulsory tests at driving schools before taking the driving test, Compulsory first aid training, Further development of motorcycle instruction), (7) Emphasis on knowledge-building (Accident analysis groups, Road safety research, Accident analysis of the road network)</p>	<ul style="list-style-type: none"> ▪ Norway ▪ School/ Road 	<p>Not evaluated</p> <p>Reviewers' rating: 3.3</p>

Table 3b continued (12)

Title/Authors	Type of Policy	Description/Aims	Level of Implementation/ Setting(s) covered	Evidence of Policy's Effectiveness/ Reviewers' rating
<p>Motorcycling Road Safety Strategy 2005-2010 (Government of South Australia, 2005)²³</p>	<p>Health Plan: Local Strategy</p>	<p>Engineering:</p> <ul style="list-style-type: none"> ▪ Environmental modification: roads and roadsides improvement; shoulder sealing of roads; delineation, signing and lighting of roads; landscaping and central island treatments; use high skid resistant water-based pavement markings on all roads; remove roadside dangerous objects; motorcycle friendly road side barriers; upgrade road side rest areas to be more amenable for motorcyclists; alcohol interlock devices. <p>Education/ Training:</p> <ul style="list-style-type: none"> ▪ Promotion/awareness raising: address the high risk factors through education and enforcement that target drink driving, excessive speed, helmet use and repeat offender behavior; motorcycle awareness campaign; ensure positive media coverage of motorcycle issues; inform the community about the crash data; implement an improved training model to complement the licensing system; promote voluntary participation in refresher courses for older drivers; conduct campaigns promoting the wearing of high visibility protective clothing; warning signs in areas highly frequented by motorcyclists; promote awareness on the hazards of fatigue. <p>Enactment/ Enforcement of legislation/ regulations:</p> <ul style="list-style-type: none"> ▪ Monitoring/inspection: monitor road maintenance performance; auditing strategies to monitor road marking constructors; monitor research and trials of drug testing for drivers and riders; improve the motorcycle licensing system; implement an audit process to ensure consistent training and testing standards; enforcement campaigns and regular license checks at popular motorcycle riding locations; on-road enforcement of motorcycle road- worthiness; checks on carriage of license. <p>Other:</p> <ul style="list-style-type: none"> ▪ Promoting new vehicle safety standards and technology; promote the 1800 018 313 telephone number for public reporting of road conditions; improve opportunities for involvement of motorcycle community in decision making processes relating to motorcycle safety. <p>Aim of strategy:</p> <ul style="list-style-type: none"> ▪ To dramatically reduce death and injury on Australian roads. Target: a 40% reduction in the fatality rate by the end of 2010. 	<ul style="list-style-type: none"> ▪ South Australia ▪ Road/ motorcycle clubs and retailers 	<p>Not evaluated</p> <p>Reviewers' rating: 3.4</p>

Table 3b continued (13)

Title/Authors	Type of Policy	Description/Aims	Level of Implementation/ Setting(s) covered	Evidence of Policy's Effectiveness/ Reviewers' rating
Police enforcement strategies to reduce traffic casualties in Europe (ETSC, 1999) ²⁴	Strategies	<p>Engineering:</p> <ul style="list-style-type: none"> ▪ Environmental modification: Traffic safety measures: traffic calming zones; Physical measures (road humps, elevated crossings, narrowing of road width); general road design, road alignment and road geometry parameters; rehabilitation courses for drink driving offenders; ignition interlock devices; increase visibility of unprotected road users. <p>Education/Training:</p> <ul style="list-style-type: none"> ▪ Promotion/awareness raising: enforcement of laws accompanied by publicity to inform drivers; information campaigns for the enforcement of seat belt laws; improve warnings on prescribed drugs. <p>Enactment/ Enforcement of legislation/ regulations:</p> <ul style="list-style-type: none"> ▪ Stationary method; speed cameras; lower BAC-limit to 0.5 mg/ml; high number of persons tested; enforcement that is unpredictable in terms of time and place, deployed in a widespread manner; highly visible police operations; red light cameras; random breath tests; penalties for excess drinking; limiting driving hours by enforcement of tachograph measures; video-techniques to monitor rear-end crashes and enforcement on specific conditions such as adverse weather; repeated enforcement and publicity campaigns at junctions. <p>Aim of strategies:</p> <ul style="list-style-type: none"> ▪ The aim of traffic regulation enforcement is road safety – achieved by deterring road users from committing offences which are related to road crashes and injuries. 	<ul style="list-style-type: none"> ▪ EU wide ▪ Road 	<p>No specific evaluation reported but the document outlines effective strategies, such as random breath tests</p> <p>Reviewers' rating: 4.3</p>
Human Resources for the Control of Road Traffic Injury (Mock et al. 2005) ²⁵	Strategies	<p>Environmental modification:</p> <ul style="list-style-type: none"> ▪ Roadway infrastructure: curvature, intersection design, signage, traffic calming measures; vehicle design and maintenance, <p>Education /Training</p> <ul style="list-style-type: none"> ▪ Basic education and in-service training <p>Enactment /enforcement of legislation /regulations</p> <ul style="list-style-type: none"> ▪ Speed control; random breath analysis; increasing use of seat belts and helmets; limit driving fatigue drivers. <p>Other</p> <p>Upgrading pre-existing data sources for surveillance.</p> <p>Aim of strategies:</p> <ul style="list-style-type: none"> ▪ To reduce road traffic injuries. 	<ul style="list-style-type: none"> ▪ N/A ▪ Road/ Work 	<ul style="list-style-type: none"> ▪ No specific evaluation reported but the document outlines effective strategies, such as random breath tests ▪ Reviewers' rating: N/A

Table 3b continued (14)

Title/Authors	Type of Policy	Description/Aims	Level of Implementation/ Setting(s) covered	Evidence of Policy's Effectiveness/ Reviewers' rating
Austrian Road Safety Programme 2002-2010 (Ministry of Transport, Innovation and Technology) ²⁶	Strategies	<p>Engineering/ Environmental modification</p> <ul style="list-style-type: none"> ▪ Black spot treatment; safety on rural roads; tunnel safety-ventilation, illumination, emergency escapes, rumble strips, clear tunnel entrances; guideline to prevent wrong-way driving; safety management in urban areas-area wide measures; motorway roadwork zones; proper road surfacing materials; road-side Telematics; land use planning; safer vehicles; heavy vehicles-lowering rear underrun protection on lorries, speed limitation devices, reflective contour markings; passive vehicle safety-participation in EuroNCAP, pedestrian friendly car fronts; restraint systems; improve visibility at crossings; measures against moped-tuning and imported irregular vehicles; road hierarchy; separated roadways for agricultural vehicles and unprotected road users; median barriers; roundabouts. <p>Education /Training:</p> <ul style="list-style-type: none"> ▪ Capacity building: basic driver education and advanced driver training, increased training hours; traffic education. ▪ Promotion/awareness raising: following distances, driving speeds; awareness building campaigns for use of seat belts through media; mobility training and traffic education to parents, students and elderly. <p>Enactment /enforcement of legislation /regulations:</p> <ul style="list-style-type: none"> ▪ Road Safety Audit; Road Safety Inspection; automatic speed surveillance; heavy goods transport; police enforcement of the use of seat belts; seat belt interlock systems; quick-testing breath analyzers; BOB-Campaign; alcohol interlock system; parking restrictions; higher minimum fines for disobeying pedestrian priority on crossings; enforcement of driving and rest periods by the police and introduction of the Digital Tachograph; daytime running lights; restriction on heavy lorry passing on motorways; Dangerous goods transport regulation; railroad crossing regulations. <p>Other: Accident data recorders; improve attractiveness of public transport;</p> <p>Aim of strategies:</p> <ul style="list-style-type: none"> ▪ The numeric goal of this program is to halve the current total of traffic deaths by 2010. The target is to reduce road fatalities by 50% and injury accidents by 20%. Targets until 2004: reduce fatalities by 25% and reduce accident injuries by 10%. In this safety program, four basic fields of action come into focus: human behavior, infrastructure, vehicles, and transport policy and legal framework. 	<ul style="list-style-type: none"> ▪ Austria ▪ School (kinder garden and pre-schools, middle and high schools)/ Road (rural and urban areas)/ vehicles 	<ul style="list-style-type: none"> ▪ This program is very well designed and includes measures that mostly have proved to be effective. <p>Reviewers' rating: 3.9</p>

Table 3b continued (15)

Title/Authors	Type of Policy	Description/Aims	Level of Implementation/ Setting(s) covered	Evidence of Policy's Effectiveness/ Reviewers' rating
Strategic Plan to 2006 (Transport Safety Authority, 2003) ²⁷	Health Plan: Strategy (safety strategy and guidelines)	<p>Engineering/ Environmental modification:</p> <ul style="list-style-type: none"> ▪ Improving the safety of the design or operation of the road and rail network, and the conditions of entry to and exit from the network for vehicles, rolling stock, users and operators. <p>Education/Training:</p> <ul style="list-style-type: none"> ▪ Promotion/awareness raising: provide information about the standards and rules; related television advertising campaigns in support of strategic enforcement initiatives; education of novice drivers. <p>Enactment/ enforcement/ monitoring of legislation/regulations:</p> <ul style="list-style-type: none"> ▪ Speed management; drink-driving countermeasures; use of car restraints; review of existing penalties for drivers non-compliance with the rules; monitor new Intelligent Transport Systems application and trials. <p>Other: To improving pedestrian and cyclist safety; reducing vehicle speeds and providing better facilities; improved exercise opportunities; support non-polluting transport modes.</p> <p>Aim of Health Plan:</p> <ul style="list-style-type: none"> ▪ To significantly reduce the level of trauma (no more than 300 deaths and 4,500 hospitalizations) experienced by New Zealanders on our roads and rail network. The general aim is, by 2010 New Zealand would have an affordable, integrated, safe, responsive and sustainable transport system. The principal objective is to promote safety in land transport at reasonable cost. 	<ul style="list-style-type: none"> ▪ New Zealand ▪ School/ Road/ public transport/ rail industry/ vehicles 	<ul style="list-style-type: none"> ▪ No specific evaluation reported but the Health Plan includes effective strategies. <p>Reviewers' rating: 2.8</p>
Road Safety Strategy 2010 (National Road Safety Committee) ²⁸	Health Plan: Strategy	<p>Engineering/ Environmental modification:</p> <ul style="list-style-type: none"> ▪ Road construction and reconstruction (retrofitting safety features and traffic calming measures), treatment of blackspots- four-laning plus medians for state highways; constructing sealed shoulders against median and outside edge; providing physical median barriers; providing roadside clear zones; providing audible edgelines; ensuring adequate crossfall and drainage; improving lighting; and providing crash cushions where lanes diverge; constructing sealed shoulders against median and outside edge; improving skid resistance; traffic signals, signs (stop, give-way) or roundabouts at all intersections, with frequent use of median islands; improving conspicuousness and delineation; providing median refuges where pedestrians are numerous and reducing crossing distances; eliminating unsignalled pedestrian crossings on four-lane roads; providing new cycle lanes and improving existing ones; providing pedestrian guard rails at busy locations; controlling all cross-roads; 	<ul style="list-style-type: none"> ▪ New Zealand ▪ School/ Road/ Other (vehicles; motor vehicle industry) 	<ul style="list-style-type: none"> ▪ No evaluation reported (not yet implemented) <p>Reviewers' rating: 3.3</p>

Table 3b continued (16)

Title/Authors	Type of Policy	Description/Aims	Level of Implementation/ Setting(s) covered	Evidence of Policy's Effectiveness/ Reviewers' rating
		<p>controlling all busy T- and Y- junctions with signs or roundabouts of consistent and cycle-friendly design; improving lighting at pedestrian crossings to a consistent standard; providing cycle lanes where space permits and demand warrants; reducing roadway width at pedestrian crossings; signing and delineating all bends with a design speed below 50 km/h; improving skid resistance at bends; adopting standards for horizontal bends; creating a more forgiving roadside by sealing shoulders, removing hazards and reducing slopes; eliminating single-lane and short narrow bridges; widening sealed shoulders; providing roadside clear zones; providing more passing lanes (while preserving existing physical standards); controlling all side-roads; providing turn bays where needed; eliminating (or providing hazard signs for) traffic signals in 100 km/h zones; mandating edgeline treatment and installing edge marker posts in accordance with approved practice; constructing sealed shoulders wherever traffic volumes warrant; providing advisory speed signs on all bends where speed should be reduced by 15 km/h or more; mandating enterline delineation on all sealed roads in accordance with approved practice; improving forward visibility; controlling all intersections; providing advance warning signs where appropriate; - and maintenance;) product modification (improved standard of vehicle fleet; improved heavy vehicle visibility and stability)</p> <p>Road safety education:</p> <ul style="list-style-type: none"> ▪ Educational course materials; community-groups to educate road users and build capacity in communities for addressing road safety problems; novice driver training; educate professionals and consumers <p>Enactment/ enforcement of legislation/regulations</p> <ul style="list-style-type: none"> ▪ Lower speed limits-demerit points for speed camera offences; reduce drink driving; increase the use of car restraints; 0.05 BAC limit; more intensive compulsory breath testing; 17 yrs minimum driving age; license suspension; stricter licensing conditions; use of headlines for an extended period during the day; alcohol interlocks; zero tolerance laws for drivers under 20 yrs. <p>Other: Improvement of emergency and medical services;</p> <p>Aim of Health Plan:</p> <ul style="list-style-type: none"> ▪ To improve road safety and the target is to achieve no more than 295 deaths and 1940 serious injuries by 2010. 		

Table 3b continued (17)

Title/Authors	Type of Policy	Description/Aims	Level of Implementation/ Setting(s) covered	Evidence of Policy's Effectiveness/ Reviewers' rating
<p>The Government's Motorcycling strategy (Department of Transport, DfT, 2005)²⁹</p>	<p>National Strategy</p>	<p>Engineering:</p> <ul style="list-style-type: none"> ▪ Consider the potential for improved rider safety that a consumer rating of motorbike safety could provide; work with stakeholders to consider findings from research on motorbike design changes to reduce accidents; support initiatives by manufacturers to fit anti-lock brakes <p>Education:</p> <ul style="list-style-type: none"> ▪ Support initiatives by bikers, trainers and manufacturers to promote correct helmet fitting and the wearing of clothes to increase conspicuity and provide protection in the event of an accident; review whether to make pre-test training compulsory; develop training aids e.g. CR ROMs, DVDs for structured training programs of for self learning; develop national standards for post test training for motorcycle full licence holders, especially those upgrading their bikes, returning to riding after a break and newly qualified riders; voluntary registration scheme for motor cycle trainers; present the case for a road safety GCSE to the Qualifications and Curriculum authority <p>Enactment/ Enforcement</p> <ul style="list-style-type: none"> ▪ Seeking powers in the Road Safety bill for courts to offer riders who have committed an offence a driver improvement course with associated reductions in disqualification or penalties <p>Other</p> <ul style="list-style-type: none"> ▪ Highways agency to include motorcycles as a mode of transport to be addressed in their Safety Action Plans and ensure needs of motorcyclists taken into account in design, maintenance and management of the road network; reflect on priorities for research into effect of fatigue in motorcyclist accidents and driver skills, knowledge and attitudes in relation to motorcycle safety; research to evaluate motor cycle training courses; research to develop guidelines on best practice for speed awareness courses; advertising and national publicity to raise awareness of motor cycle safety issues, review involvement in sports sponsorship and its effectiveness at communicating safety messages <p>Aim of strategy</p> <ul style="list-style-type: none"> ▪ Facilitate motorcycling as a choice of travel within a safe and sustainable transport framework 	<ul style="list-style-type: none"> ▪ England ▪ Road 	<p>Reviewers' rating: 2.6</p>

3) Recommendations and Guidelines

Table 3b continued (18)

Title/Authors	Type of Policy	Description/Aims	Level of Implementation/ Setting(s) covered	Evidence of Policy's Effectiveness/ Reviewers' rating
Road safety - by accident or design. Guidelines for improving road safety in regeneration areas (Scottish Road Safety Campaign, 2004) ³⁰	Guidelines	<p>The document includes guidelines on how best to approach road safety issues in regeneration areas using an inter agency, community based approach</p> <p>Primary aim:</p> <ul style="list-style-type: none"> ▪ To promote community safety in regeneration areas and ensure best road and community safety practice in the design of regeneration projects. 	<ul style="list-style-type: none"> ▪ Scotland ▪ Road/ community regeneration 	Reviewers' rating: 3.2
Selecting and Using the Most Appropriate Car Safety Seats for Growing Children: Guidelines for Counseling Parents (American Academy of Pediatrics, Committee on Injury and Poison Prevention, 2002) ³¹	Recommendation: Guidelines	<ul style="list-style-type: none"> ▪ The document includes guidelines for appropriate selection and proper use of car safety seats or child restraint devices for children. <p>Aim of guidelines:</p> <ul style="list-style-type: none"> ▪ To reduce motor vehicle collision-related death and injury. Specifically, the guideline intends to provide up-to-date, appropriate information for parents regarding their car safety seat choices and proper use. 	<ul style="list-style-type: none"> ▪ America ▪ Motor vehicles 	Reviewers' rating: 2.5
Urban safety management guidelines: road safety strategies for urban communities (DfT, 2003) ³²	Recommendations and General Principles	<p>The document describes principles of urban safety management, provides research evidence from projects using USM and how to assess the effect of USM</p> <p>Aim:</p> <ul style="list-style-type: none"> ▪ Reductions in death, injury and damage in traffic collisions 	<ul style="list-style-type: none"> ▪ Great Britain ▪ Road 	Reviewers' rating: 4.3

Table 3b continued (19)

Title/Authors	Type of Policy	Description/Aims	Level of Implementation/ Setting(s) covered	Evidence of Policy's Effectiveness/ Reviewers' rating
Handbook of rules and guidance for the National Safety camera Programme for England and Wales 2005/6 (DfT, 2004) ³³	Code of practice: includes rules and guidelines for use of speed and red light cameras	describes rules for local partnerships (police, highways agencies, local authorities, magistrates courts, health authority) to deliver a speed and red light camera scheme. Aim: <ul style="list-style-type: none"> ▪ to reduce deaths and serious injury on the roads by reducing speed and red light running 	<ul style="list-style-type: none"> ▪ Great Britain ▪ Road 	Three year evaluation found reductions in speed at camera sites by 7% and overall the proportion of vehicles speeding excessively (15mph above sped limit) fell by 80% at fixed camera sites and by 28% at mobile camera sites. 33% reduction in personal injury collisions at sites where cameras introduced which equated to 40% reduction in the number killed or seriously injured. Positive cost benefit in ratio of 4:1 (savings £221 million vs costs of £54 million). Positive public attitudes towards cameras. Reviewers' rating: 4.2

2) Grey Policy papers from Italy

Table 3b continued (20)

Title/Authors	Type of Policy	Description/Aims	Level of Implementation/ Setting(s) covered	Evidence of Policy's Effectiveness/ Reviewers' rating
Sorveglianza e prevenzione degli Incidenti Stradali (CCM, 2005) ²⁰	Regional Plan	<p>Surveillance:</p> <ul style="list-style-type: none"> ▪ Census of all experiences, networking and exchange in the sought of effective actions. Development of an integrated surveillance system, implementation of new information sources (linkage data from first aid service 118 and hospital discharge forms SDO) Improvement of existing data sources. Study of the prevalence of use of safety belts and children seats. <p>Documentation:</p> <ul style="list-style-type: none"> ▪ Implementation of a documentation system including evidence based, recommendations, best practices available, website and marketing plan, online consultancy, systematic update. <p>Prevention:</p> <ul style="list-style-type: none"> ▪ Efficacy evaluation and re-orientation, if needed, of the currently operative preventive interventions. Design and evaluation of a multicentric project for the prevention of road traffic injuries in collaboration with ASL and other sectors that may influence the determinants of accidents. Evaluation by the employers of the specific risks due to occupational driving. Adoption of the preventive measures indicated by the European Health and Safety Agency by contacting the interested parties, census of the transport enterprises, planning of group meetings with the enterprises, training courses, verification of the actions on a sample of enterprises. Communication plan and information campaigns at the regional level. Integration of local programs, identification of specific targets development/ continuation of effective actions. <p>Aim of plan:</p> <ul style="list-style-type: none"> ▪ Surveillance: To implement surveillance system of the impact on health of road traffic injuries. ▪ Documentation: To consolidate and develop the documentation activity in order to make available data and interventions useful to act with effective actions on the determinants of road traffic injuries. ▪ Prevention: To promote and realize new evidence based preventive interventions 	N/A	Reviewers' rating: 2.7

²⁰ Available at: <http://www.ccm.ministerosalute.it/ccm/ccmDettaglio.jsp?id=177&label=pro-reg&men=vuoto&lingua=italiano>

Table 3b continued (21)

Title/Authors	Type of Policy	Description/Aims	Level of Implementation/ Setting(s) covered	Evidence of Policy's Effectiveness/ Reviewers' rating
Sorveglianza a Prevenzione degli Incidenti Stradali (CCM, 2006) ²¹	Regional Plan	<ul style="list-style-type: none"> ▪ The aim is to create an information system able to provide risk maps for traffic injuries. This is to be done by activating collaborations with the local health units (ASL), <p>Prevention activities:</p> <ul style="list-style-type: none"> ▪ Collaboration with various prompters and beneficiaries of interventions. ▪ Creation of common protocols with the police in order to strengthen vigilance and repression of risk behaviour. ▪ Identification of actions with proven efficacy and definition of the programs to promote road traffic safety. ▪ Training of the personnel involved. ▪ Implementation of an ad hoc project for the monitoring of the use of children seats, helmets and seat belts. ▪ Activation of promotion campaign for the use of helmets etc. ▪ Activation of information campaign on basic traffic norms in elementary and middle schools. ▪ Promotion of the use of children seats in family services, vaccination services etc, ▪ Activation of campaigns to improve road safety of workers. ▪ Constitution of local technical committees to examine data and promote propose actions to improve traffic signs, corrections of high risk situations (protections, crossings) and realization of infrastructures where needed (pavements, roundabouts etc.) ▪ Utilization of the information system for the monitoring the effects of each intervention, also taking into account statistical power. <p>Aim of plan:</p> <ul style="list-style-type: none"> ▪ To build an integrated surveillance system able to quantify the problem from a health view point, to monitor the trends a provide information for evidence-based preventive interventions. ▪ To reduce morbidity and mortality due to injuries. 	<ul style="list-style-type: none"> ▪ N/A 	Reviewers' rating: 3.5

²¹ Available online at: <http://www.ccm.ministerosalute.it/ccm/ccmDettaglio.jsp?id=177&label=pro-reg&men=vuoto&lingua=italiano>

Table 3b continued (22)

Title/Authors	Type of Policy	Description/Aims	Level of Implementation/ Setting(s) covered	Evidence of Policy's Effectiveness/ Reviewers' rating
Sorveglianza e prevenzione degli incidenti stradali (CCM, 2006) ²²	Regional Plan	<p>Surveillance:</p> <ul style="list-style-type: none"> ▪ To improve outcome surveillance systems based on health data. To investigate risk factors concerning road injuries, with particular reference to the use of individual protective devices. To evaluate knowledge and attitudes on driving behaviours and factors associated with traffic injuries in strata of target population. <p>Prevention:</p> <ul style="list-style-type: none"> ▪ To develop an alliance with the police to intensify road controls, in particular on individual protective devices. To inform/educate on the use of individual protective devices, in association with the controls mentioned before. To develop an alliance with the police for the control of drink driving. Information campaigns locally/regionally to reduce drink driving, to improve the certification of driving suitability. Evaluation by the competent organisms of the road safety of any territory and infrastructural pacification. To collaborate with the Observatory for road educational campaigns of information/ education about safe driving in schools and driving schools. <p>Aim of plan:</p> <ul style="list-style-type: none"> ▪ To improve road safety acting on the following: to spread the culture of road safety. To create alliances between several public and private subjects. To modify environmental determinants ("the shape of roads and towns") 	<ul style="list-style-type: none"> ▪ Regione Emilia Romagna, IT ▪ Road 	Reviewers' rating: 3.5
Piano Nazionale della Prevenzione 2005-2007: linee operative per la pianificazione regionale. (CCM, 2005) ²³	Guidelines for the preparation of (mandatory) Regional plan for the surveillance and prevention of injuries.	<p>Secondary aims:</p> <ul style="list-style-type: none"> ▪ Road modifications; home hazard modification for elderly, ▪ Promotion/awareness raising in various settings according to the type of injury; training on domestic and road safety; information and education for children caretakers and elderly people, Training of health professionals; ▪ Low enforcement monitoring of speed control, alcohol level, use of helmets, seat belts and children's seats, enforcement of laws concerning occupational safety. ▪ The aim is to fulfil the objectives set by WHO and the EU in terms of reduction of injuries. 	<ul style="list-style-type: none"> ▪ Italy ▪ Home/ Work/ School/ Road/ Health and social care 	Reviewers' rating: 3.7

²² Available online at: <http://www.ccm.ministerosalute.it/ccm/ccmDettaglio.jsp?id=177&label=pro-reg&men=vuoto&lingua=italiano>

²³ Available online at: <http://www.ccm.ministerosalute.it/ccm/>

Table 3b continued (23)

Title/Authors	Type of Policy	Description/Aims	Level of Implementation/ Setting(s) covered	Evidence of Policy's Effectiveness/ Reviewers' rating
<p>Progetto Regionale per la Prevenzione degli Incidenti Stradali: "Non ci casco più" (CCM, 2005)²⁴</p>	<p>Local Surveillance and Prevention Plan</p>	<p>This regional plan has two main lines of action: Surveillance and Prevention.</p> <ul style="list-style-type: none"> ▪ The surveillance plan includes the epidemiologic analysis of road accidents and of risk factors, in particular the use of helmets, seat belts and childrens' seats, and evaluation of knowledge and attitude towards driving behaviours and factors associated with road accidents in students and in those obtaining or renovating the driving licence. ▪ Preventive actions includes: development of an alliance with the road police to intensify controls on the use of helmets, seat belts and children' seats, drink driving and information and education about these issues. Improvement of the quality of the driving certifications by training of medical doctors that issue certifications of driving fitness, use of standardized questionnaires for the identification of use/abuse of alcoholic beverages and screening of visual ability in older people. Development of tracks for driving rehabilitation of drivers involved in severe infringements of diving rules, improvement of safe driving ability of professional drivers (truck drivers, ambulance drivers etc.), improvements of technical-scientific skills for the analysis of urbanistic instruments with specific reference to the promotion of road safety. ▪ Law enforcement: Maintenance of current levels (>90%) of helmet use by motor two-wheelers. Increase of use of seat belts. Contrast the driving under the influence of alcohol or psychotropic substances. Contrast aggressive lifestyles (sic), in particular high speed. <p>Aim of Plan:</p> <ul style="list-style-type: none"> ▪ Reduction by 20% of mortality due to road accidents, in particular at age 15-24. ▪ Reduction of 20% of hospitalization for road accidents. ▪ Reduction of 10% of severe permanent consequences due to road accidents. 	<ul style="list-style-type: none"> ▪ Regione Calabria, IT ▪ Work/ School/ Leisure 	<p>Reviewers' rating: 3.1</p>

²⁴ Available online at: <http://www.ccm.ministerosalute.it/ccm/ccmDettaglio.jsp?id=177&label=pro-reg&men=vuoto&lingua=italiano>

Table 3b continued (24)

Title/Authors	Type of Policy	Description/Aims	Level of Implementation/ Setting(s) covered	Evidence of Policy's Effectiveness/ Reviewers' rating
Piano Nazionale della Sicurezza Stradale Azioni Prioritarie (MIT, 2002) ²⁵	Strategic Plan including standards for the identification and modification of high risk roads and recommendations for the improvement of security of urban and extraurban roads, and of vulnerable a high risk road users.	<p>Two action levels are included:</p> <ul style="list-style-type: none"> ▪ Urgent interventions in high risk area (defined in terms of number and severity of accidents) and definition of actions with high efficacy and ▪ favouring the formation of technical conditions that are the baseline for the improvement of actions aimed at contrasting risk factors and for the implementation of systematic coordinated multi-sectorial interventions. <p>The actions included concern several different area, including the coordination of different organisms, the guide lines for identification and modification of high risk roads, the definition of guide lines for the enforcement of legislation, the capacity building of several different professional figures (local police, health professionals, teachers), information and awareness raising of the general population and in schools, the involvement of private sectors (employers, insurance companies, car manufacturers)</p> <p>Aim of Plan:</p> <ul style="list-style-type: none"> ▪ To reduce the number of death and severe injuries due to traffic accidents by 40% by 2010 	<ul style="list-style-type: none"> ▪ Italy ▪ School/ Road/ Health and social care/ community 	Reviewers' rating: 3.8

²⁵ Available online at: <http://www.infrastrutturetrasporti.it/>

Conclusions

Road traffic injury (RTI) has become a major health problem globally, causing over one million deaths each year.

Despite the huge burden, the policy response to RTI in countries with low or middle incomes has been limited. This is, in part, owing to the misconception that little can be done. In most countries with high income, however, rates of death from RTI have significantly decreased in recent decades.

Effective motor vehicle—pedestrian collision prevention approaches have been developed and studied in many developed nations as well as in a few developing countries.¹¹

Recommended policies for the prevention of RTI are³⁴:

- Safety features into land-use and transport planning (e.g. the provision of shorter and safer pedestrian and bicycle routes and convenient, safe and affordable public transport) and road design, including controlled crossings for pedestrians, rumble strips and street lighting;
- Setting and enforcing speed limits appropriate to the function of specific roads;
- Setting and enforcing laws requiring riders of bicycles and motorized two-wheelers to wear helmets;
- Requiring daytime running lights for two-wheeled vehicles (the use of daytime running lights on fourwheeled vehicles should also be considered);
- Requiring that motor vehicles be designed for crashworthiness to protect the occupants, with efforts to expand this concept to the design of the fronts of motor vehicles, so as to protect pedestrians and cyclists;
- Requiring new road projects to be subject to a road safety audit, by a road safety specialist independent of the road designer;
- Managing existing road infrastructure to promote safety, through the provision of safer routes for pedestrians and cyclists, traffic-calming measures, low-cost remedial measures and crash-protective roadsides;
- Law enforcement programs with public information and education campaigns (for example, on the dangers of speeding or driving while under the influence of alcohol, and the social and legal consequences of doing so).

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3. Drowning

A total of 41 Policy documents, aiming at reducing childhood drowning, were retrieved and further reviewed. Of these 31 fulfilled all inclusion criteria and 4 were characterised as promising.

Breakdown of gathered drowning prevention policies

	N
Gathered	41
Included papers	31
To be further reviewed (promising)	4
Excluded papers	6
Other date of publish	2
The policy did not aimed at primary prevention	1
Not included age group (>00-14 years old)	3

From the total number of papers, 36 documents referred to *Drowning* and 5 documents referred to a *Combination* (3 documents referred to *Drowning & Alcohol related injury* and 2 documents referred to *Drowning & Recreational injury*).

The information is summarized in Table 4b. Overall, there was:

Table 4a. Drowning policies

Policy	Description	Level of Effectiveness
Environmental modification	<ul style="list-style-type: none"> ○ Use of secure drain covers in pools, spas, hot tubs, and whirlpool bathtubs (so that the drain covers cannot pose an entrapment hazard for hair and holding bodies underwater) ○ Installation of four-sided pool fencing (at least 4 feet high) with a self-closing, self-latching gate ○ Motorized pool covers and pool alarms (only when there is a four-sided fence around the pool) 	Evidence of effectiveness
Education/ Training	<ul style="list-style-type: none"> ○ Access to Water Safety education by people in rural and particularly remote country locations 	
Awareness raising	<ul style="list-style-type: none"> ○ Dissemination of Water Safety information to all in-bound tourists and migrants ○ Publication of key Water Safety messages in a variety of different languages and promotion of Water Safety information to ethnic groups through Local Councils and through cultural specific publications 	
Capacity building	<ul style="list-style-type: none"> ○ CPR (cardiopulmonary resuscitation) training for parents ○ Water familiarisation programs for children established at appropriate age/developmental levels ○ Appropriate level of accreditation for all Swimming Teachers and Coaches conducting programs to children aged 1-4 years old 	
Other	<ul style="list-style-type: none"> ○ Safety standards for aquatic programs conducted by swimming school operators 	

Policy	Description	Level of Effectiveness
<p>Law enforcement</p> <p>Monitoring</p> <p>Other</p>	<ul style="list-style-type: none"> ○ Enactment of an appropriate Safety Plan for the Building Application and Development Application of aquatic facilities which are part of a development or of developments adjacent to aquatic environments ○ Mandatory use of personal flotation devices (PFD) by all persons on board boats crossing off-shore sand bars ○ Appropriate Safety Services at all locations of aquatic recreation ○ Conduction of Safety Audits on all aquatic locations and particularly on areas used as regular swimming locations –beaches, pools and inland swimming holes ○ “Touch” supervision of children -which means that the supervisor is within an arm’s length of the child at all times in or near the water- by adults (not older children) who know CPR, know how to initiate an emergency response plan, and have not consumed alcohol 	
	Covered hot tubs and spas when not in use	Sufficient evidence of effectiveness
	Swimming pool fencing laws	Limited evidence of effectiveness
	Installation of three-sided pool fencing	No evidence of effectiveness

1) Legislation

Table 4b Summary of Policies to prevent drowning

Title/Authors	Type of Policy	Description/Aims	Level of Implementation/ Setting(s) covered	Evidence of Policy's Effectiveness/ Reviewers' rating
Weerdenburg et al, 2003 ¹	Legislation	<ul style="list-style-type: none"> ▪ Swimming pool fencing laws in Australia. <p>Aim of legislation:</p> <ul style="list-style-type: none"> ▪ The reduction of childhood drownings in domestic swimming pools. 	<ul style="list-style-type: none"> ▪ New South Wales, Australia ▪ Home (domestic swimming pools) 	<p>The laws' effectiveness is being compromised by a low level of compliance. Studies have consistently documented baseline swimming pool fencing compliance levels of 50% or less and local government authorities have demonstrated a poor track record in the initiation and maintenance of ongoing pool inspection programs.</p> <p>Reviewers' rating: 3.1</p>
Health and Safety Code Section 115920-115929 (California Government) ²	Legislation	<ul style="list-style-type: none"> ▪ Swimming pool fencing laws in California ▪ The reduction of childhood drownings in domestic swimming pools and spas. 	<ul style="list-style-type: none"> ▪ California, USA ▪ Home (domestic swimming pools and spas) 	<p>Not available evaluation of effectiveness</p> <p>Reviewers' rating: 3.2</p>
Achieving Compliance with Pool Fencing Legislation in New Zealand: A Survey of Regulatory Authorities (Morrison et al 1999) ³	Legislation	<ul style="list-style-type: none"> ▪ New Zealand introduced mandatory fencing with the passing of the Fencing of Swimming Pools Act 1987 (FOSP Act). This act requires domestic swimming pools, including spa pools, to be fenced. Since 1991 the act has been supplemented by the Building Act 1991 that requires that a building consent be obtained for all new pools before construction. For consent to be granted, plans must demonstrate compliance with the Building Code (and compliance with the FOSP Act is one method of demonstrating this). ▪ The reduction of toddler drownings in domestic swimming pools. 	<ul style="list-style-type: none"> ▪ New Zealand ▪ Home (domestic swimming pools) 	<p>Since the introduction of the Act, the average number of preschoolers drowning in domestic pools each year has halved from eight to four. It is clear that the Act provides a means to prevent children from drowning, but its effectiveness is being compromised by a low level of compliance. This study identified two major factors limiting the act's effectiveness: (1) inconsistencies between authorities in their enforcement of particular requirements, largely due to ambiguities in the legislation, and (2) some authorities making little attempt to locate pools or monitor compliance. This study has demonstrated that legislation by itself is not sufficient to ensure the safety of children. Legislation needs to be enforced to be effective.</p> <p>Reviewers' rating: 3.6</p>

Table 4b continued (1)

Title/Authors	Type of Policy	Description/Aims	Level of Implementation/ Setting(s) covered	Evidence of Policy's Effectiveness/ Reviewers' rating
Childhood Drowning: Barriers Surrounding Private Swimming Pools (Stevenson et al, 2003) ⁴	Legislation / Standards	<ul style="list-style-type: none"> ▪ The current legislation in Western Australia relating to barriers around private swimming pools states that if a swimming pool was installed before July 1992, then its enclosure may include a wall that contains a door or window permitting direct access between the enclosed area and the residence (before July 1992, 3-sided fencing). A swimming pool installed after July 1992 either can be isolated from the residence (4-sided fencing) or its enclosure may include a wall that contains a door or window permitting access if that door or window satisfies the requirements of the Australian Standard AS 1926.1, namely that they have locks (after July 1992, 3-sided fencing). <p>Aim of legislation:</p> <ul style="list-style-type: none"> ▪ The reduction of toddler drownings in domestic swimming pools. 	<ul style="list-style-type: none"> ▪ Western Australia ▪ Home (domestic swimming pools) 	<p>There is no evidence of effectiveness for 3-sided fencing, as the study estimated that there is almost a 2-fold increased risk (approximately 78% increased risk) of a child's drowning in a swimming pool with 3-sided versus 4-sided fencing. However, it is not sufficient to advocate for 4-sided fencing alone; in many drowning events, 4-sided fencing surrounding private pools failed to prevent unintended access because the pool gates were propped open or had insufficient self-closing/latching pool gate mechanism.</p> <p>Reviewers' rating: 3.1</p>
Guidelines to Swimming Pool Fencing (Penrith City Council) ⁵	Legislation / Standards	<ul style="list-style-type: none"> ▪ According to the Swimming Pools Act, all outdoor swimming pools and spa pools constructed after August 1, 1990, must be surrounded by a fence that isolates the pool from the remainder of the premises and from any place adjoining the premises. Structures such as garages, sheds, clothes lines, barbecues and the like are not permitted to be located within the pool area. All fences and gates must be designed and constructed in accordance with "Australian Standard 1926 – 1986: Fences and Gates for Private Swimming Pools", and must be of a permanent nature. According to AS 1926 - 1986, fences and gates must be of a height not less than 1.2 metres at any point their length measured and doors and windows providing access to the pool area must be made 'child safe'. Also, the spacing of vertical members of the fence must not exceed 100mm and horizontal members of the fence must be placed on the inside of the fence and be at least 900mm apart. The height of any opening between the bottom of the fence and finished ground level must not exceed 100mm. Finally, all swimming pool gates must be made self-closing and self-locking and must swing outwards only, away from the pool area. <p>Aim of legislation:</p> <ul style="list-style-type: none"> ▪ The reduction of childhood drownings in domestic swimming pools. 	<ul style="list-style-type: none"> ▪ New South Wales, Australia ▪ Home (domestic swimming pools and spas) 	<p>Not available evaluation of effectiveness</p> <p>Reviewers' rating: 3.1</p>

1) Health Plan: National/ Local

Table 4b continued (2)

Title/Authors	Type of Policy	Description/Aims	Level of Implementation/ Setting(s) covered	Evidence of Policy's Effectiveness/ Reviewers' rating
Drowning Prevention Strategy: Towards a Water Safe New Zealand 2005 – 2015 (Dyson HR) ⁶	Health Plan: Local	<p>Environmental modification:</p> <ul style="list-style-type: none"> ▪ Swimming pool fencing, Inherent buoyancy in boats <p>Education/training/ awareness raising:</p> <ul style="list-style-type: none"> ▪ Water safety education programmes / Awareness programmes for educators, instructors and coaches involved in water safety education) / Capacity building (Minimum level of water safety knowledge and skills for all New Zealanders / Swimming programs for children) <p>Other: Use of safety equipment (e.g. PFD) / Use of water safety signage</p> <p>Aim of Plan</p> <ul style="list-style-type: none"> ▪ To create water safety culture in New Zealand (i.e. a shared commitment to a set of beliefs, attitudes, values and behaviours which support water safety and contribute to the prevention of drowning and water-related injury). 	<ul style="list-style-type: none"> ▪ New Zealand, Australia ▪ Home (private pools and spas, baths, buckets, drains)/ Leisure (swimming, fishing, boating)/ Public place (inland waterways (rivers, lakes, streams), surf beaches, open sea) 	<p>Not available evaluation of effectiveness</p> <p>Reviewers' rating: 3.5</p>
Evaluation of the Australian National Water Safety Plan (1998-2003) (Franklin RC) ⁷	Health Plan: National	<p>Education/training:</p> <ul style="list-style-type: none"> ▪ Water familiarisation programs for children established at appropriate age/developmental levels / Appropriate level of accreditation for all Swimming Teachers and Coaches conducting programs to children aged 1-4 years old) / Promotion/awareness raising (Access to Water Safety education by people in rural and particularly remote country locations / Dissemination of Water Safety Information to all in-bound tourists and migrants / Translation of key water safety messages in a variety of different languages and promotion of the translated messages to ethnic groups through Local Councils and through cultural specific publications) / National Safety Standards for Learn to Swim & Water Safety programs conducted by Swimming School operators <p>Enactment/ enforcement of legislation/regulations:</p> <ul style="list-style-type: none"> ▪ Enactment of legislation (to ensure that if an aquatic facility is part of a development, or a development is proposed adjacent to an aquatic environment, the Building Application and Development Application must include an appropriate Safety Plan / Appropriate Safety Services at all locations of aquatic recreation / Mandatory use of PFD by all persons on board boats crossing off-shore sand bar) / Material monitoring/inspection (Conduction of Safety Audits on all aquatic locations, especially on areas used as regular swimming locations - beaches, pools and inland swimming holes) <p>Aim of Plan:</p> <p>The major objective of the National Water Safety Plan was to more adequately resource and effectively utilise the significant programs, resources, facilities and world's best practice that currently exist. Through increasing resources, improving</p>	<ul style="list-style-type: none"> ▪ Australia ▪ Community 	<p>The major findings of the evaluation were:</p> <ol style="list-style-type: none"> 1. Since the introduction of the NWSP 1998-2003 there has been a decline in the number and rate of people drowning in Australia, 2. The NWSP 1998-2003 successfully identified and prioritised the major water safety issues in 1998, 3. The NWSP 1998-2003 has helped to increase the amount of information sharing in the water safety community, 4. The NWSP 1998-2003 has improved communication within the water safety community, through the provision of conferences, regular meetings and joint research projects, 5. There has been some identification and improvement in organisational linkages, 6. The NWSP 1998-2003 has had an effect on the distribution of standards nationally (That some States incorporated information from the NWSP into their plans/frameworks also implies that the NWSP has had some influence on the production of the standards),

Table 4b continued (3)

Title/Authors	Type of Policy	Description/Aims	Level of Implementation/ Setting(s) covered	Evidence of Policy's Effectiveness/ Reviewers' rating
		<p>communication and encouraging the sharing of ideas within the Water Safety structure it was believed that Australia's drowning toll would be significantly reduced.</p>		<p>7. There is a commitment to support, bolster and improve the expertise, programs and resources in water safety, 8. The amount of resources has increased since the introduction of the NWSP 1998-2003 and the development of water safety strategies and frameworks in other States. (Strong evidence of effectiveness)</p>
<p>Australian National Water Safety Plan (2004-2007) (Australian Water Safety Council)⁸</p>	<p>Health Plan: National</p>	<p>Environmental modification:</p> <ul style="list-style-type: none"> ▪ Securely fenced safe play areas on farms and rural properties <p>Education/Training:</p> <ul style="list-style-type: none"> ▪ Water Safety lessons for children -established at appropriate age/developmental levels; Educational programs for recreational fishers and for males 16-35 years old against "risk-taking" behaviour/ Publication of key water safety messages in a variety of different languages / Water Safety information available for all Inbound Tourists and Migrants/ Accreditation of water safety teachers, instructors, coaches & all pool & beach lifeguards <p>Enactment/ enforcement of legislation/regulations:</p> <ul style="list-style-type: none"> ▪ Lifejackets to be worn as a mandatory piece of Safety Equipment for all recreational boaters when under power and for children under 12 years of age in watercraft at all times/ Adoption of a Home Pool Inspection System/ Safety standards for all aquatic venues and facilities and for all surf beach locations and environs/ National Signage Standards for aquatic locations/ Use of standard uniform colours (red and yellow) for all lifeguards at aquatic locations / Risk Management Plans for all regularly used aquatic locations <p>Other: Appropriate Prevention, Rescue and Emergency Services at all locations regularly used for aquatic recreation.</p> <p>Aim of Plan:</p> <ul style="list-style-type: none"> ▪ When the inaugural National Water Safety Plan was launched in 1998 over 300 Australians drowned each year. Five years on that figure now stands at 250 drowning deaths – a reduction of over 17%. While the reduction in the drowning rate is acknowledged, the ultimate goal remains “zero drowning deaths and the establishment of a water safety culture in Australia”. The objective for the period of this plan is to achieve a continuing reduction of drowning deaths to 200 by 2007. This represents a 20% decrease on the 250 drowning deaths currently or a 5% decrease per annum over the period of the plan. 	<ul style="list-style-type: none"> ▪ Australia ▪ Community 	<p>Reviewers' rating: 4.2</p> <p>Not available evaluation of effectiveness</p> <p>Reviewers' rating: 4</p>

2) Recommendations

Table 4b continued (4)

Title/Authors	Type of Policy	Description/Aims	Level of Implementation/ Setting(s) covered	Evidence of Policy's Effectiveness/ Reviewers' rating
Swimming lessons for infants and toddlers (Canadian Paediatric Society) ⁹	Position Statement / Recommendations	<p>Environmental modification:</p> <ul style="list-style-type: none"> ▪ Four-sided pool fencing with a self-closing, self-latching gatepool <p>Education / training:</p> <ul style="list-style-type: none"> ▪ Swimming programs for children older than four years old, aquatic activities and swimming programs for children less than four should focus on building confidence and educating parents regarding water safety / swimming instruction carried out by trained instructors in pools that comply with current standards for design, maintenance, operation, and infection control / CPR training for parents and pool owners <p>Other: Constant arms-length adult supervision for toddlers and infants near water / Use of government-approved personal flotation devices (PFDs)</p> <p>Aim of Recommendations:</p> <ul style="list-style-type: none"> ▪ The reduction of infant and toddler drownings. 	<ul style="list-style-type: none"> ▪ USA ▪ Home (residential pools and bathtubs) / Leisure (bathing in public areas) / Public place (public swimming pools) 	<p>Not available evaluation of effectiveness</p> <p>Reviewers' rating: 3</p>
Swimming programs for infants and toddlers (American Academy of Pediatrics - Committee on Sports Medicine and Fitness and Committee on Injury and Poison Prevention) ¹⁰	Policy Statement / Recommendations	<p>Education /training:</p> <ul style="list-style-type: none"> ▪ Swimming programs for children older than four years old <p>Other: "Touch supervision" (whenever infants and toddlers are in or around water, an adult should be within an arm's length) / All aquatic programs should include information on the cognitive and motor limitations of infants and toddlers, the inherent risks of water, the strategies for prevention of drowning, and the role of adults in supervising and monitoring the safety of children in and around water / Pediatricians should support data collection, drowning prevention research, and legislation aimed at reducing the risk of drowning in young children in and around water.</p> <p>Aim of recommendations:</p> <ul style="list-style-type: none"> ▪ The reduction of infant and toddler drownings. 	<ul style="list-style-type: none"> ▪ USA ▪ Leisure (aquatic programs) 	<p>Not available evaluation of effectiveness</p> <p>Reviewers' rating: 3.1</p>
Backyard Swimming Pool And Spa Safety Barriers (Royal Life Saving Society Australia) ¹¹	Policy Statement / Recommendations	<p>Environmental modification:</p> <ul style="list-style-type: none"> ▪ Isolation fencing with self-closing gates and self-locking latches. <p>Aim of recommendations:</p> <ul style="list-style-type: none"> ▪ The reduction of toddler drowning in swimming pools and spas. 	<ul style="list-style-type: none"> ▪ Australia ▪ Home (domestic swimming pools and spas) / Public place (public swimming pools and spas) 	<p>Not available evaluation of effectiveness</p> <p>Reviewers' rating: 3.1</p>

Table 4b continued (5)

Title/Authors	Type of Policy	Description/Aims	Level of Implementation/ Setting(s) covered	Evidence of Policy's Effectiveness/ Reviewers' rating
Supervision of Children Under 5 Years of Age (Royal Life Saving Society Australia) ¹²	Policy Statement / Recommendations	Other: Constant adult supervision of children. Aim of recommendations: ▪ The reduction of toddler drowning.	<ul style="list-style-type: none"> ▪ Australia ▪ Home (private swimming pools, spas, bathtubs) / Public place (public swimming pools, bathing areas) 	<p>Not available evaluation of effectiveness</p> <p>Reviewers' rating: 3.3</p>
Age of Participation in Water Familiarisation Programs (Royal Life Saving Society Australia) ¹³	Policy Statement / Recommendations	Education / training: ▪ Water familiarisation programs for toddlers. Aim of recommendations: ▪ The primary aim of the policy is to provide basic water familiarisation skills to children, so that they will feel more confident when entering formal swimming and survival programs.	<ul style="list-style-type: none"> ▪ Australia ▪ Leisure (aquatic programs) 	<p>Not available evaluation of effectiveness</p> <p>Reviewers' rating: 3.1</p>
Rescue and Resuscitation Skills of Parents and Carers of Children Under 5 Years of Age (Royal Life Saving Society Australia) ¹⁴	Policy Statement / Recommendations	Education / training: ▪ Rescue and resuscitation training of all parents and carers of children under 5 years of age Other: Basic rescue equipment (e.g. skimmer net poles, ropes and buoyant devices) in the swimming pool or spa environment. Aim of recommendations: ▪ The reduction of toddler drowning.	<ul style="list-style-type: none"> ▪ Australia ▪ Home (domestic swimming pools and spas) 	<p>Not available evaluation of effectiveness</p> <p>Reviewers' rating: 3.4</p>
Minimum Qualifications for the Conduct of Formal Aquatics Programs for Children Under 5 Years of Age (Royal Life Saving Society Australia) ¹⁵	Policy Statement / Recommendations	Education / training: ▪ Teaching qualification, Water Safety and Rescue qualification, and Resuscitation qualification for swimming teachers. Aim of recommendations: ▪ The primary aim of the policy is to ensure the safety of children less than 5 years old who participate in aquatics programs.	<ul style="list-style-type: none"> ▪ Australia ▪ Leisure (aquatic programs) 	<p>Not available evaluation of effectiveness</p> <p>Reviewers' rating: 3.1</p>
Teacher: Pupil Ratios for the Conduct of Formal Aquatics Programs for Children Under 5 Years of Age (Royal Life Saving Society Australia) ¹⁶	Policy Statement / Recommendations	Other: Teacher: pupil ratios for the conduct of formal aquatics programs. Aim of recommendations: ▪ The primary aim of the policy is to ensure the safety of children less than 5 years old who participate in aquatics programs.	<ul style="list-style-type: none"> ▪ Australia ▪ Leisure (aquatic programs) 	<p>Not available evaluation of effectiveness</p> <p>Reviewers' rating: 3.1</p>

Table 4b continued (6)

Title/Authors	Type of Policy	Description/Aims	Level of Implementation/ Setting(s) covered	Evidence of Policy's Effectiveness/ Reviewers' rating
Prevention of Drowning in Infants, Children, and Adolescents (American Academy of Pediatrics - Committee on Injury, Violence, and Poison Prevention) ¹⁷	Policy Statement / Recommendations	<p>Environmental modification</p> <ul style="list-style-type: none"> ▪ four-sided pool fencing, at least 4 feet high <p>Education /training:</p> <ul style="list-style-type: none"> ▪ Promotion/awareness raising: parents and caregivers need to be advised that they should never leave children alone or in the care of another young child while in or around water/ pediatricians should counsel adolescents about the dangers of alcohol and other drug consumption during aquatic recreation activities ▪ Capacity building: swimming lessons for children older than four years old / CPR training for parents, pool owners and adolescents <p>Enactment/ enforcement of legislation/regulations:</p> <ul style="list-style-type: none"> ▪ pediatricians are encouraged to work in their communities to pass legislation to mandate isolation pool fencing and to support efforts to ensure that community pools and other pools accessible to the public have lifeguards with current CPR certification / pediatricians should support state and community efforts to enforce laws that prohibit alcohol and other drug consumption by boat operators and adolescents <p>Other: Use of an approved PFD (not air-filled swimming aids, such as water wings)</p> <p>Aim of recommendations:</p> <ul style="list-style-type: none"> ▪ The reduction of drownings among infants, children and adolescents. 	<ul style="list-style-type: none"> ▪ USA ▪ Home (bathtubs, toilets, residential pools and spas) / Leisure (swimming, diving and boating) / Community / Public place (public bathing areas) 	<p>Not available evaluation of effectiveness</p> <p>Reviewers' rating: 3</p>
Personal Watercraft Use by Children and Adolescents (American Academy of Pediatrics - Committee on Injury and Poison Prevention) ¹⁸	Policy statement / Recommendations	<p>PWC operation by people older than 16 years / Use of an approved personal flotation device by operator and passengers / Alcohol or other drug use should be avoided before and while operating PWC / Participation in a safe boater course with specific information about PWC before operating PWC / Safe operating practices, such as no operation between sunset and sunrise, no wake jumping, and observing posted speed limits or no- wake zones, should be followed / Use of protective equipment such as wet suits, gloves, boots, eyewear and helmets / PWC should not be operated where swimmers are in the water / Pediatricians should work within their communities to pass legislation about alcohol consumption, speed limits, and the use of personal flotation devices.</p> <p>Aim of recommendations:</p> <ul style="list-style-type: none"> ▪ The reduction of drowning and other PWC-related injuries. 	<ul style="list-style-type: none"> ▪ USA ▪ Leisure (personal watercraft use) 	<p>Not available evaluation of effectiveness</p> <p>Reviewers' rating: 3</p>

Table 4b continued (7)

Title/Authors	Type of Policy	Description/Aims	Level of Implementation/ Setting(s) covered	Evidence of Policy's Effectiveness/ Reviewers' rating
Water Safety Fact Sheet (ENA Institute of Injury Prevention/ Emergency Nurses CARE) ¹⁹	Factsheet / Recommendations	<p>Environmental modification:</p> <ul style="list-style-type: none"> ▪ Pool fencing, at least 4 feet tall, with self-closing and self-latching gates / Safety locks on household toilets <p>Education /training:</p> <ul style="list-style-type: none"> ▪ Promotion/awareness raising: classes and education about how to prevent childhood drownings and how to perform infant/child CPR ▪ Capacity building: swimming lessons for children older than four years old by qualified instructors <p>Enactment/ enforcement of legislation/regulations:</p> <ul style="list-style-type: none"> ▪ a qualified pool professional to inspect the drain suction fitting and covers on the pool and spa and to assure that they are the proper size/fit, properly attached, and meet current safety standards. <p>Other:</p> <p>Active supervision by a designated adult / Rescue equipment and a cellular phone (including a list of emergency numbers) at poolside / Use of approved life preservers or life jackets (not air-filled swim aids, such as "water wings" or "tubes", because they give a false sense of security and increase the chances of drowning) / Removal of all toys from in and around the pool (when not in use) so children will not attempt to reach for them</p> <p>Aim of recommendations</p> <ul style="list-style-type: none"> ▪ The reduction of drownings by raising awareness, providing education and promoting healthy lifestyles. 	<ul style="list-style-type: none"> ▪ USA ▪ Home (toilets, bathtubs and basins) / Leisure (swimming pools and spas) 	<p>Not available evaluation of effectiveness</p> <p>Reviewers' rating: 3</p>
Recommendations on Child Drowning Prevention (Washington State Child Death Review (CDR) Committee) ²⁰	Recommendations	<p>Environmental modification:</p> <ul style="list-style-type: none"> ▪ Creation of physically safe water environments <p>Education /training:</p> <ul style="list-style-type: none"> ▪ Promotion/awareness raising: Raising community and personal awareness of child and teen drowning risk factors and prevention/safety strategies <p>Other:</p> <p>To increase life jacket use and supervision of children and adolescents in or near the water / To encourage policies and regulations that emphasize water safety / To support standardized drowning death investigation procedures and improve data collection efforts</p> <p>Aim of recommendations:</p> <ul style="list-style-type: none"> ▪ The reduction of drowning deaths among Washington's children. 	<ul style="list-style-type: none"> ▪ Washington, USA ▪ Home (bathtubs) / Leisure (swimming, boating)/Public swimming pools, public swimming areas 	<p>Not available evaluation of effectiveness</p> <p>Reviewers' rating: 3</p>

Table 4b continued (8)

Title/Authors	Type of Policy	Description/Aims	Level of Implementation/ Setting(s) covered	Evidence of Policy's Effectiveness/ Reviewers' rating
How to Plan For the Unexpected: Preventing Child Drownings (U.S. Consumer Product Safety Commission) ²¹	Recommendations	<p>Environmental modification</p> <ul style="list-style-type: none"> ▪ Pool fencing, at least 4 feet high, without foot- or handholds that could help a child to climb it / Vertical fence slats less than 4 inches apart to prevent a child from squeezing through / If the fence is chain link, then no part of the diamond-shaped opening should be larger than 1-3/4 inches / Self-closing and self-latching fence gates / Installation of alarms to doors leading from the house to the pool (or power safety covers over the pool may be used as an alternative to door alarms) / Steps and ladders leading from the ground to the pool should be secured and locked, or removed when the pool is not in use <p>Education /training:</p> <ul style="list-style-type: none"> ▪ CPR training for parents, caregivers and pool owners) <p>Other:</p> <p>Constant adult supervision/ Rescue equipment by the pool and a telephone with emergency numbers/ Removal of toys from in and around the pool (toys can attract young children to the pool)</p> <p>Aim of recommendations:</p> <ul style="list-style-type: none"> ▪ The reduction of childhood drownings. 	<ul style="list-style-type: none"> ▪ USA ▪ Home (private swimming pools, bathtubs and spas) 	<p>Not available evaluation of effectiveness</p> <p>Reviewers' rating: 3</p>
Recommendations for Water Safety and Drowning Prevention for Travelers (Cortés et al, 2006) ²²	Recommendations (review)	<p>Environmental modification</p> <ul style="list-style-type: none"> ▪ Use of secure drain covers in pools, spas, hot tubs, and whirlpool bathtubs / A climb-resistant fence (minimum height of 4 ft) with a self-closing, self-latching gate for home and hotel pools / Motorized pool covers and pool alarms (only when there is a four-sided fence around the pool) / Covered hot tubs and spas when not in use <p>Education /training:</p> <ul style="list-style-type: none"> ▪ CPR training for parents <p>Other:</p> <p>“Touch” supervision of children by adults (not older children) who know CPR, know how to initiate an emergency response plan, and have not consumed alcohol.</p> <p>Aim of recommendations:</p> <ul style="list-style-type: none"> ▪ The goals of this review were to develop research-based drowning prevention and water-safety recommendations for travelers (here are mentioned only the recommendations for travelers with children, not all the recommendations of the review). 	<ul style="list-style-type: none"> ▪ N/A ▪ Leisure (swimming in hotel pools or other public areas, boating, e.t.c.) / Public place (hotel pools, public bathing areas) 	<p>There is evidence of effectiveness of the recommendations included in the review</p> <p>Reviewer's rating: 3.3</p>

Table 4b continued (9)

Title/Authors	Type of Policy	Description/Aims	Level of Implementation/ Setting(s) covered	Evidence of Policy's Effectiveness/ Reviewers' rating
How to be safe in and around the water (NSW Multicultural Health Communication Service) ²³	Recommendations	Environmental modification <ul style="list-style-type: none"> ▪ Installation of pool-fencing Education /training: <ul style="list-style-type: none"> ▪ Capacity building: Water familiarisation classes to help children become confident in the water and to introduce them to basic water safety Other: <p>Constant adult supervision of children near water / Swimming between the red and yellow flags at the beach / PFD use when boating</p> Aim of recommendations: <ul style="list-style-type: none"> ▪ The reduction of drownings. 	<ul style="list-style-type: none"> ▪ New South Wales, Australia ▪ Home (private swimming pools, bathtubs and spas) /Leisure (swimming, boating, rock fishing)/ public swimming pools, beaches, rivers, lakes 	Not available evaluation of effectiveness Reviewers' rating: 3.2
Guidelines for Entrapment Hazards: Making Pools and Spas Safer (U.S. Consumer Product Safety Commission) ²⁴	Recommendations	Engineering: <ul style="list-style-type: none"> ▪ Product modification: A minimum of two outlets per pump, with pipe centers at least 3 feet apart, for new pools, spas and hot tubs that include fully submerged suction outlets / Rework of the suction (drain) system for existing pools, spas and hot tubs or installation of a secondary back-up system that relieves the entrapping suction and/or shuts down the pump when a blockage is detected / Use of drain covers that display the appropriate markings for maximum flow rate and labeling that indicate it has been tested to the ASME/ANSI voluntary standard / Immediate replacement of a cracked, broken or missing drain cover or grate / Use of covers in accordance with the manufacturer's specifications and supplied parts / Color coding or labeling plumbing and equipment Aim of recommendations: <ul style="list-style-type: none"> ▪ To eliminate dangerous entrapment hazards in swimming pools, wading pools, spas and hot tubs and to reduce drownings. 	<ul style="list-style-type: none"> ▪ USA ▪ Home (residential pools, spas and hot tubs)/ public swimming pools, spas and hot tubs) 	Not available evaluation of effectiveness Reviewers' rating: 3

Table 4b continued (10)

Title/Authors	Type of Policy	Description/Aims	Level of Implementation/ Setting(s) covered	Evidence of Policy's Effectiveness/ Reviewers' rating
Facts About Injuries: Drowning (World Health Organization) ²⁵	Recommendations	<p>Environmental modification:</p> <ul style="list-style-type: none"> ▪ Drainage of unnecessary accumulations of water (e.g. baths, ponds, buckets, etc.) / Flood control embankments in flood-prone areas / Fence around rural fish ponds, construction ditches (where filled with rainwater) and other bodies of water around houses and in the community / Fence around rural homes in proximity to water (e.g. farmhouses) / Use of grills over water wells) <p>Education /training:</p> <ul style="list-style-type: none"> ▪ Promotion/awareness raising: Promotion of “learn to swim” programs for primary school children, especially in low- and middle-income countries / Awareness of the need to supervise children both in and outside the home, and establishment of parent groups in rural communities, especially around harvest times / Education in boat safety regulations as well as of the need for personal floatation devices when boating / Instructions for children (e.g. to avoid entering fast-flowing streams, and not to swim alone) ▪ Capacity building: Training of lifeguards for regular deployment in supervised swimming locations / CPR training for general community <p>Enactment/ enforcement of legislation/regulations:</p> <ul style="list-style-type: none"> ▪ Inspection of all boats and larger vessels, Enforcement of mandatory isolation fencing for swimming pools, legislation against consuming alcohol while boating or around large bodies of water <p>Other:</p> <p>International harmonization of flags and symbols used for beach safety/ Access to public swimming pools to promote learning to swim</p> <p>Aim of recommendations:</p> <ul style="list-style-type: none"> ▪ The reduction of drownings. 	<ul style="list-style-type: none"> ▪ World ▪ Home (domestic swimming pools) / Leisure (swimming and boating) / Public place (public swimming pools, bathing areas, natural bodies of water) 	<p>Not available evaluation of effectiveness</p> <p>Reviewers' rating: 3.1</p>
Pond Safety (The Royal Society for the Prevention of Accidents) ²⁶	Recommendations	<p>Environmental modification:</p> <ul style="list-style-type: none"> ▪ Use of rigid mesh or grille as a cover in garden ponds/ Fence or vegetative barriers in school ponds <p>Other:</p> <p>Supervision of children / Clear signage at the access points to the pond (e.g. a sign stating ‘No unaccompanied children’, or, if ice forms during the winter ‘Danger: thin ice’) / Appropriate footwear for children and adults</p> <p>Aim of recommendations:</p> <ul style="list-style-type: none"> ▪ The reduction of toddler drownings in ponds. 	<ul style="list-style-type: none"> ▪ UK ▪ Home (garden ponds, rainwater butts, paddling pools or buckets) / School (school ponds) 	<p>Not available evaluation of effectiveness</p> <p>Reviewers' rating: 3.2</p>

Table 4b continued (11)

Title/Authors	Type of Policy	Description/Aims	Level of Implementation/ Setting(s) covered	Evidence of Policy's Effectiveness/ Reviewers' rating
Visual Surveillance Report: 2001 Edition (Canadian Red Cross) ²⁷	Recommendations	Education /training: <ul style="list-style-type: none"> ▪ Promotion/awareness raising: Research based community water safety training programs and promotional / Education campaigns for caregivers and children Enactment/ enforcement of legislation/regulations: <ul style="list-style-type: none"> ▪ Pool fencing legislation/ Swimming pool inspections Other: <p>Constant adult supervision of children</p> <p>Aim of recommendations</p> <ul style="list-style-type: none"> ▪ The reduction of drownings. 	<ul style="list-style-type: none"> ▪ Canada ▪ Home (bathtubs, domestic swimming pools) / Leisure (boating, swimming and wading) / Public place (bathing areas) 	Not available evaluation of effectiveness Reviewers' rating: 3.4
Backyard Pool: Always Supervise Children, Safety Commission Warns (U.S. Consumer Product Safety Commission) ²⁸	Recommendations / Tips for drowning prevention	Environmental modification <ul style="list-style-type: none"> ▪ Pool fencing, at least 4 feet high, with self-closing and self-latching gates / Door alarms / Power safety cover (when the pool is not in use) / Pool alarms / Secured steps and ladders (for aboveground pools) Education/ training: <ul style="list-style-type: none"> ▪ CPR training Other: <p>Constant adult supervision of children around water / Rescue equipment and a portable phone with emergency numbers near the pool / Diving after following certain precautions.</p> <p>Aim of recommendations:</p> <ul style="list-style-type: none"> ▪ The reduction of childhood drowning. 	<ul style="list-style-type: none"> ▪ USA ▪ Home (domestic swimming pools) / Leisure (swimming and diving) 	Not available evaluation of effectiveness Reviewers' rating: 3.1
Drowning Prevention Tips (Foundation for Aquatic Injury Prevention) ²⁹	Recommendations / Tips for drowning prevention	Environmental modification: <ul style="list-style-type: none"> ▪ Pool covers / Pool alarms / Fences and Barriers / Pool perimeter fencing / Safety devices in house doors / Miscellaneous devices (exposed ladders into a pool, pipes and filters, decks, etc.) / Devices for cleaning the water in swimming pools (in some accidents, pool water is so cloudy that the drowning victim is not readily seen) Education/ training: <ul style="list-style-type: none"> ▪ CPR training for pool owners/ Videotapes including segments on near drowning as well as diving accidents to all pool packages, to expose the potential consumer and users to the hazards of a pool Other: <p>A portable phone or an extension phone near the pool.</p> <p>Aim of recommendations:</p> <ul style="list-style-type: none"> ▪ The prevention of childhood drowning. 	<ul style="list-style-type: none"> ▪ USA ▪ Home (domestic swimming pools) / Leisure (swimming and diving) 	Not available evaluation of effectiveness Reviewers' rating: 3.2

Table 4b continued (12)

Title/Authors	Type of Policy	Description/Aims	Level of Implementation/ Setting(s) covered	Evidence of Policy's Effectiveness/ Reviewers' rating
Child safety: Prevent drowning (Mayo Clinic) ³⁰	Recommendations / Tips for drowning prevention	<p>Environmental modification:</p> <ul style="list-style-type: none"> ▪ Pool fencing / Installation of alarms (door alarms and underwater pool alarms that sound when something hits the water) / Installation of a motor-powered safety cover when the pool is not in use / Above-ground pools / Safety covers on hot tubs <p>Education/ training:</p> <ul style="list-style-type: none"> ▪ CPR training <p>Other:</p> <p>Constant adult supervision of children / Swimming lessons for children older than 4 years / PFD use / Safe storage of buckets.</p> <p>Aim of recommendations:</p> <ul style="list-style-type: none"> ▪ The prevention of childhood drowning. 	<ul style="list-style-type: none"> ▪ USA ▪ Home (toilets, bathtubs, domestic swimming pools) / Leisure (swimming in natural bodies of water -lakes, rivers and oceans) 	<p>Not available evaluation of effectiveness</p> <p>Reviewers' rating: 3.4</p>

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4. Occupational Injuries

4.1. AGRICULTURE

Background

Agriculture has some important characteristics that distinguish it from other industries socially, economically, psychologically and geographically.²⁶ For example, in agriculture the workplace and the residence may be co-located; therefore many of the hazards that affect the agricultural worker may also affect the family, including the children. Also, in the cases of self-employers or very small businesses, there is little or no distinction between management and labour, few legal or pre-selection barriers to entry such as age, sex or even ability (versus desire), and no employee benefits such as sick leave, medical insurance, or workers compensation.

From the safety perspective, agriculture is an intrinsically "risky" business because of existence of multiple risk factors, unrecognised and unaddressed injury hazards, unavailability of safety equipment at the worksite and use of unsafe methods. Also, as farmers may find it difficult to change prices to reflect the costs of production, this may result in limited incentives to purchase, install, or maintain preventive safety and health controls. Agriculture is a geographically dispersed industry with many small businesses spread over a broad region, inhibiting epidemiologic surveillance or "recognition" of hazards and the provision of prevention services. More at risk of injury (fatal and non-fatal) are the self-employed, then the employees and finally the members of the public of which some are children.²⁷

The most common causes of death, in descending order of frequency, according to the HSE, are:

- Transport (being run over or vehicle overturns)
- Falling from a height (through fragile roofs, trees etc)
- Struck by moving or falling objects (bales, trees etc)
- Asphyxiation, drowning
- Trapped by something collapsing or overturning
- Contact with machinery
- Livestock related fatalities
- Contact with electricity

Description of results

Out of the eleven different policy documents that fulfilled the initial inclusion criteria, their appraisal took place using the rating criteria already mentioned in the 'Review Methods' section. The policy messages and recommendations proposed in these documents were the following:

²⁶Occupational Safety and Health Administration, OSHA,
<http://www.osha.gov/SLTC/agriculturaloperations/recognition.html>

²⁷ www.hse.gov.uk/agriculture/hsagriculture.htm (health and safety in agriculture)

- Provision of roll-over protective structures (ROPS) by the employer for each tractor operated by an employee and also provision of seatbelts to use where ROPS are required in order to confine the employee to the area provided by the protective system
- Information provision by the employer for the employee before the initiation of the work assignment about the operating practices and the work environment
- Use of protective frame for wheel-type agricultural tractors, extending above the operator's seat, with overhead weather shield and overhead falling-object protection devices
- Avoidance of operation of tractors near ditches, embankments and holes, reduction of speed when turning, crossing slopes and on rough surfaces
- Other passengers, apart from the driver, not permitted to ride the vehicle
- Secure tractor brake setting and use of park lock where available
- Hitching only to the drawbar (a bar across the rear of a motor vehicle, or a device securely attached to the motor vehicle, which maintains a fixed position) and hitch points recommended by tractor manufacturers

References of the selected policy documents

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4.2. TRANSPORT

Background

The transport injuries within the occupational safety field include two other fields: (a) vehicle safety at work, where the most common vehicle accidents are caused by people being hit by a vehicle, people falling from vehicles, objects falling from vehicles on to people and vehicles toppling over and (b) work-related road safety.

In the EU countries, as well as USA and Australia, work-related motor-vehicle crashes are estimated to contribute at least one quarter to over one third of all work-related deaths. Using a very wide definition of work-related accidents it is estimated that, in Britain alone, up to a third of all road crashes involves someone at work²⁸.

Until now, the issue has received little attention, as the vehicle was not classed as part of the workplace. But, in recent years, occupational road safety, work-related road safety, fleet safety or the management of occupational road risk has become better studied and understood, as researchers, industry bodies and government agencies realise the extent of the problem and some good research and practice emerges. Nevertheless, the full extent of the problem remains relatively unknown, with the exception of countries like Finland, Sweden and UK, because good quality 'purpose of journey' data in road safety statistics are scarce. Good and detailed data collection does not take place, and other data sets are being used such as workers' compensation, insurance, and hospital admissions that give information only in part on the scale of the problem²⁹

Results/Discussion

As becomes apparent through the search for policies for injury prevention in the transport field of occupational injuries, an approach is required that is both multidisciplinary and multifaceted.³⁰ Different vehicle work environments call for different interventions and no single intervention will suffice for a given work environment. Prevention efforts should include a combination of education and training, enforcement and engineering controls. Groups working primarily in occupational road safety need to understand more fully the issues that influence worker safety on the roadway.

Applying the initial inclusion criteria, as far as occupational injuries relating to the transport field are concerned, twelve policy documents were collected. Of those the three top score documents were selected. They were the ones that during the critical appraisal presented a score of 58, 59 and 62 points. The policy messages presented in these policy documents were the following:

- Risk assessment for the health and safety of the employees by the employer, review of the risk assessment and implementation of changes where are needed
- In case of a young person's employment, particular account of the inexperience, of the worker, the nature, degree and duration of the exposure to risk, the organization of activities and use of work experience by the employer
- Drivers not permitted to operate vehicles if their ability is impaired by fatigue or illness, if under the influence of a controlled substance, may not use alcohol or be under the influence of alcohol within 4 hours of going on duty

²⁸ erso- European Road Safety Observatory,
www.erso.eu/knowledge/content/60_work/work_related_traffic_injury.htm

²⁹ <http://www.cdc.gov/niosh/contract-reports/WORS/WORS-04-10-2007.pdf>

³⁰ <http://www.cdc.gov/niosh/docs/2004-136/>.

- Motor carriers must not schedule such work that a vehicle would have to be operated above the speed limit to travel between points within a certain time period
- The driver that has a seat belt installed at the driver's seat must be restrained within the seat belt before operating the vehicle
- Trucks and buses must be equipped with an antilock brake system and a malfunction indicator system for the antilock brake system
- Drivers may not operate after having been on duty 60 hours in 7 consecutive days (if the motor carrier does not operate 7 days a week), or after having been on duty 70 hours in 8 consecutive days (if the motor carrier operates 7 days a week) and they must maintain a record of duty status for each 24-hour period
- Motor carriers must systematically inspect, repair, and maintain all motor vehicles under their control. Operation of a motor vehicle in a condition that is likely to cause an accident is not permitted and a written report at the end of each day's work has to be prepared

References of selected policy documents

1. <http://www.hse.gov.uk/research/rrhtm/rr038.htm> Transport Research Laboratory (TRL) Limited for the Health & Safety Executive, 2002 , Research Report 038, Review of Workplace Control Measures to Reduce Risks Arising From Movements of Vehicles, Statutory Instrument 1999 No.3242, The Management of Health and Safety at Work Regulations
2. <http://www.cdc.gov/niosh/docs/2003-119/2003-119c.html#three> National Institute for Occupational Safety and Health (NIOSH), September 2003, Driving of Commercial Motor Vehicles [49 CFR 392]
3. <http://www.cdc.gov/niosh/docs/2003-119/2003-119c.html#three> National Institute for Occupational Safety and Health (NIOSH), September 2003, Hours of Service of Drivers [49 CFR 395]

4.3. CONSTRUCTION

Background

The construction sector produces a wide range of products, from individual houses to major infrastructure such as roads, power plants and petrochemical complexes. In most countries output is roughly equally divided between housing, other buildings and civil engineering projects. Although in general attention is mostly focused on new construction, the renovation and maintenance of existing structures accounts for almost 50% of total construction output in some of the more developed economies and an even greater share of employment.

The enterprises engaged in construction are equally diverse. They range from self-employed individuals to multinational firms operating on global scale. However, the vast majority of enterprises involved in on-site construction are small and local.

Despite much talk of 'globalization' and the existence of an international construction industry, more than 95% of construction activity is still undertaken by firms from within the country, the region or the neighbourhood.

There is an increasing tendency among enterprises in construction (as in other industries) to outsource the supply of goods and services required in the production process. Building materials, plant and equipment are generally purchased or hired from other enterprises. Specialized services are supplied by subcontractors, and labour by 'labour agents'. Design and engineering services are also provided by separate professional entities. Drawing the boundaries of the construction industry in order to define the component industries of the construction industry is therefore not easy.

Narrowly defined, the industry comprises only those enterprises that contribute through production or assembly operations on the construction site. A broader definition would include firms and individuals involved in planning, design, the supply of building materials, plant, equipment, transport and other services. Some definitions also include the customer, particularly the professional client or 'property developer'. The recent increase in the number of contractor-financed infrastructure projects might make it sensible to include the financial services sectors as well³¹.

The construction sector is strategically important for Europe providing building and infrastructure on which all sectors of the economy depend. With 11.8 million operatives directly employed in the sector, it is Europe's largest industrial employer accounting for 7% of total employment and 28% of industrial employment in the European Union (EU-15). It is estimated that 26 million workers in the EU-15 depend in one way or another on the construction sector. About 910 billion Euros was invested in construction in 2003, representing 10% of the GDP and 51.2% of the Gross Fixed Capital Formation (measure of the net new investment by enterprises in the domestic economy in fixed capital assets during an accounting period) of the EU-15.

Construction is also an important sector of the economy in new Member States. In Poland, Czech Republic and Hungary alone, the turnover was about 38 billion Euros in 2003 and the market is estimated to be growing significantly at an average rate of 4.2% per year.

Construction is one of the most dangerous occupations. Data from a number of industrialized countries show that construction workers are three to four times more likely than other workers to die from accidents at work. In the developing world the risks associated with construction work are much greater: available data suggest three to six times greater. Yet the causes of accidents are well known and almost all are preventable³².

The biggest causes of fatal injury in the construction industry are falls from height. In addition to fatalities, major injuries such as broken bones or fractured skulls are reported each year by the construction industry. For example there are more than 4

³¹ http://ec.europa.eu/enterprise/construction/index_en.htm

³² <http://www.ilo.org/public/english/dialogue/sector/sectors/constr/health.htm>

000 serious non-fatal injuries every year in the UK only and over half of these serious injuries involve falls from height. In addition, major injuries, even though not fatal, are caused from tripping over materials on walkways and those, too, are considered to be easily preventable³³. Nevertheless, there are a series of factors that hinder the correct implementation of preventive measures, such as weak monitoring and enforcement mechanisms, rare voluntary compliance, low levels of organization among the workers and deliberate negligence by employers³⁴.

Results

Out of the 9 policy documents selected at first instance, only two were attributed a score higher than 50, deemed as the cut-off point in order to accept a policy as 'good'. The policy messages from these policy documents were the following:

- Dutyholders must avoid work at height where they can, use work equipment or other measures to prevent falls where they cannot avoid working at height and where they cannot eliminate the risk of a fall, use work equipment or other measures to minimise the distance and consequences of a fall should one occur. The work at height must be properly planned, taking account of weather conditions that could endanger health and safety.
- Those involved in work at height should be trained and competent, the place where work is done should be safe, equipment should be appropriately inspected, that risks from fragile surfaces and falling objects are properly controlled.
- If the above precautions do not entirely eliminate the risk of a fall occurring, all that is reasonably practicable must be done to minimise the distance and effect of a fall. When selecting equipment for work at height it is necessary to use the most suitable, give collective protection measures priority over personal protection measures, take account of the working conditions and risks to the safety of all those at the place where the work equipment is to be used
- Inspections must be carried out to ensure that each individual place at which work is to be done at height is checked on every occasion before that place is used, that any item is inspected after it is assembled or installed if its safety depends on how it is assembled or installed, as often as is necessary to ensure safety, and in particular to make sure that any deterioration can be detected and remedied in good time.
- The person inspecting a platform must prepare a report before going off duty and give the report within 24 hours of completing the inspection to the person for whom the inspection was done, who must keep the report at the construction site until the work is completed and then at an office for another three months. All the records of inspection must be kept until the next inspection has been carried out.
- The employer must ensure that no one working under his control goes onto or near a fragile surface unless that is the only reasonably practicable way for the worker to carry out the work safely. If anyone does work on or near a fragile surface he must ensure that suitable platforms, coverings, guard rails and the

³³ HSE

³⁴ <http://www.ilo.org/public/english/dialogue/sector/sectors/constr/health.htm>

like are provided and used to minimise the risk and if any risk of a fall remains he should minimise the distance and effect of the fall. Also, if any worker could go onto or near a fragile surface, the employer must do all that is practicable to make them aware of the danger, preferably by prominent warning notices fixed at the approaches to the danger zone

- The employer must ensure that no one is injured by anything falling and ensure that nothing is thrown or tipped from height if it is likely to injure anyone, stored in such a way that its movement is likely to injure anyone and if the workplace contains an area in which there is a risk of someone being struck by a falling object or person, he must ensure that the area is clearly indicated and that unauthorised people are unable to reach it
- Assure that design and construction of scaffolds conform to Occupational Safety and Health Administration (OSHA) requirements, shield scaffold suspension ropes and body belt or harness system droplines (lifelines) from hot or corrosive processes, and protect them from sharp edges or abrasion. In addition, inspect all scaffolds, scaffold components and personal fall protection equipment before each use, provide personal fall protection equipment and make sure that it is used by all workers on suspension scaffolds. Also, use structurally sound portions of buildings or other structures to anchor droplines for body belt or harness systems and tiebacks for suspension scaffold support devices. Droplines and tiebacks should be secured to separate anchor points, provide proper training for all workers who use any type of suspension scaffold or fall protection equipment and follow scaffold manufacturers' guidance regarding the assembly, rigging, and use of scaffolds.
- Suspension ropes and droplines for body belt or harness systems should be shielded from heat-producing processes such as welding, acids or other corrosive substances, and sharp edges or abrasions. Such ropes should be made from material that is not adversely affected by heat, acids or other corrosives.
- Employers should require a competent person to inspect all scaffolds and scaffold components for visible defects before use on each workshift. Scaffolds must be erected, moved, dismantled, or altered only under the supervision of a competent person. All components of personal fall protection equipment (including body belts or harnesses, lanyards, droplines, trolley lines, and points of anchorage) must be inspected by a competent person before use and any visibly damaged or worn equipment should be removed from service immediately.
- Employers should provide workers with proper training, including the manufacturers' recommendations for installing and operating suspended scaffold systems and for using personal fall protection equipment. Untrained personnel should never be permitted to work from any type of suspension scaffold.
- Employers must provide appropriate fall protection systems and ensure their use by all workers on suspension scaffolds. Generally, these workers should be protected by a guardrail system or a combination of body belt or harness system. However, when single-point and two-point adjustable suspension scaffolds are used, workers must be protected by both a body belt or harness system and a guardrail system. Also, when boatswain chairs (seat consisting of a board and a rope), catenary scaffolds (suspension scaffold consisting of a

platform supported by two essentially horizontal and parallel ropes attached to structural members of a building or other structure), and float scaffolds (a suspension scaffold consisting of a braced platform resting on two parallel bearers and hung from overhead supports by ropes of fixed length) are used, workers must be protected only by a body belt or harness system

References of the selected policy documents:

1. <http://www.opsi.gov.uk/SI/si2005/20050735.htm> Act of Parliament, 2005 Statutory Instrument 2005 No. 735, The Work at Height Regulations 2005
2. <http://www.cdc.gov/niosh/92-108.html> Department of Health and Human Services, Centers for Disease Control & Prevention, The National Institute for Occupational Safety and Health, 1986, last updated 1997 Preventing Worker Injuries and Deaths Caused by Falls From Suspension Scaffolds, Niosh alert, 51 Fed. Reg. 42680 (1986) revision of construction industry safety regulations addressing all types of scaffolds

4.4. ELECTRICITY

Background

Electrical current exposes workers to a serious occupational hazard; practically all members of the workforce are exposed to electrical energy during the performances of daily duties³⁵. Some professionals such as engineers, electricians and others work with electricity directly, including working on overhead lines, cable harnesses and circuit assemblies. Others, such as office workers and salespeople, work with electricity indirectly and may also be exposed to electrical hazards³⁶. Many workers are unaware of the potential electrical hazards present in their work environment, which makes them more vulnerable to the danger of electrocution. (1)

Electrical injuries consist of four main types: electrocution (fatal), electric shock, burns and falls caused as a result of contact with electrical energy. Injury depends up to a significant degree on the type of voltage used.

There are two categories, divided by the National Electrical Code: high voltage (greater than 600 Volts) and low voltage (less than or equal to 600 Volts). Momentary contact with low voltages produces no thermal injury, but may cause ventricular fibrillation (a very rapid, ineffective heart beat). In contacts with high voltage, massive current flows may stop the heart completely. When the circuit breaks, the heart may start beating normally. Supporting respiration by immediate mouth-to-mouth techniques may be required, even if a pulse is present. If extensive burns are present, death may result from subsequent complications.

³⁵ <http://www.cdc.gov/niosh/topics/electrical/default.html>

³⁶ <http://www.osha.gov/SLTC/electrical/index.html>(2)

As far as the aetiology of injuries is concerned, many deaths arise from the use of poorly maintained electrical equipment, work near overhead power lines, and contact with underground power cables during excavation work, mains electricity supplies (230 Volt) and use of unsuitable electrical equipment in explosive areas such as car paint spraying booths.

Results

The policy messages from the selected policy documents were the following:

- Every individual who works with or around electrical energy should be familiar with emergency procedures. This should include knowing how to de-energize the electrical system before rescuing or beginning resuscitation on a worker who remains in contact with an electrical energy source. Cardiopulmonary resuscitation (CPR) and first aid should be immediately available at every worksite
- No one who works with electric energy should work alone, and in many instances, a "buddy system" should be established. It may be advisable to have both members of the buddy system trained in CPR, as one cannot predict which one will contact electrical energy
- Portable ladders should be tied, blocked, or otherwise secured to prevent their being displaced, and they should not be of metal or other conductive material.
- All systems must be of such construction as to prevent danger, maintained properly and any equipment provided for the purpose of protecting persons at work on or near electrical equipment should be suitable for the use for which it is provided, be maintained in a condition suitable for that use, and be used properly
- All conductors in a system which may give rise to danger should either be suitably covered with insulating material and as necessary protected so as to prevent danger; or have such precautions taken in respect of them (including, where appropriate, their being suitably placed) as will prevent danger.
- Precautions should be taken, either by earthing or by other suitable means, to prevent danger arising when any conductor (other than a circuit conductor) which may reasonably foreseeably become charged as a result of either the use of a system, or a fault in a system. A conductor shall be regarded as earthed when conductors of sufficient strength and current-carrying capability to discharge electrical energy to earth connect it to the earth.

- No person should be engaged in any work activity on or near any live conductor (other than one suitably covered with insulating material so as to prevent danger) unless it is unreasonable in all the circumstances for it to be dead; and it is reasonable in all the circumstances for him to be at work on or near it while it is live; and suitable precautions (including where necessary the provision of suitable protective equipment) are taken to prevent injury.

- For the purposes of enabling injury to be prevented, adequate working space, adequate means of access, and adequate lighting shall be provided at all

electrical equipment on which or near which work is being done in circumstances which may give rise to danger

References of the selected policy documents

1. <http://www.cdc.gov/niosh/87-103.html> NIOSH, December 1986, last updated 1997 Preventing Fatalities of Workers Who Contact Electrical Energy NIOSH ALERT: DHHS (NIOSH) Publication No. 87-103
2. <http://www.cdc.gov/niosh/89-110.html> NIOSH, July 1989, last updated 1997 [29 CFR* 1926.450(a)(11) and 1926.951(c)(1)].
3. http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=DIRECTIVES&p_id=1757 Occupational Safety & Health Administration (OSHA), 1978 [29 CFR 1926.450(a)(10)].
4. <http://www.cdc.gov/niosh/89-110.html> Department of Health and Human Services, Centers for Disease Control & Prevention (CDC), National Institute of Occupational Safety and Health (NIOSH), July 1989, last updated 1997 Preventing Electrocutions of Workers Using Portable Metal Ladders Near Overhead Power Lines [29 CFR 1926.450(a)(11) or 1926.951(c)(1)]
5. http://www.opsi.gov.uk/si/si1989/Uksi_19890635_en_1.htm Statutory instrument No.635 Health and Safety, 1989, prepared 2000 The Electricity at Work Regulations

4.5. MANUFACTURING

Manufacturing is a branch of industry that, applying tools and processing mediums, transforms raw materials into finished ones. There are numerous sectors that relate to only one type of activity or material and they are the following:

- Leather industry
- Textiles
- Wood
- Paper
- Publishing
- Machinery
- Motors or motor vehicle repair
- Furniture
- Chemicals
- Engineering
- Food
- Tobacco
- Dressing

- Ceramics
- Plastics
- cement
- Concrete
- Quarries
- Glass
- Rubber
- Heavy clay & bricks
- Stonemasonry
- Molten metals
- Waste and recycling

Manufacturing activities although are very diverse, using very different methods and tools of handling the materials and delivering the final goods, they have some common characteristics as far as health and safety issues are concerned. The main causes of injury, present in all of those fields are:

- Handling, lifting or carrying
- Slips, trips or falls on the same level
- Hit by moving, flying or falling object
- Falls from heights
- Machinery use
- Workplace transport

Out of the nine policy documents that were collected after applying the initial inclusion criteria, only two of them received a sufficiently high score (over 50 points) through the critical appraisal. The policy messages proposed are:

- A risk assessment or HAZOP (Hazard and Operability study) has to be carried out in order to identify potential hazards and operability problems caused by deviations from design intent
- Local consultation on safety issues has to take place with safety committees, engineering departments and employee
- The worker should choose suitable floor surface, sufficient lighting, plan properly pedestrian and traffic routes and avoid overcrowding
- Emergency lighting must be placed where persons at work are especially at risk
- Maintenance: an area and local/task specific risk assessment must be undertaken and reviewed when there is reason to suspect they are no longer valid, reviews should be undertaken where there has been an incident or at least annually, the inspection scheme should cover the whole site, system of reporting and rectifying hazards caused by defects that would lead to falls and slips, walkways kept in good condition, free of potholes, uneven surfaces, cracks, provided with effective drainage, equipment maintained in good condition, adequate lighting for walkways
- Housekeeping: cleaning up of all scrap and spillage, cleaning identified at risk assessment and work instructions, wastes generated to be disposed of in correct facility, inspection scheme, item storage not in walkways, employee training for safety equipment use and cleaning equipment provided

- Behavior safety: behavior safety programs, training programs organized by the companies for hazard identification, demonstration of visible leadership on safety in all decisions that are made, every task to have a risk assessment in place, audit scheme to monitor employee behavior, handrails available for use when climbing or descending stairs, drivers reminded of safe methods of descending from cab, correct footwear used
- Inspections: all equipment should be inspected after installation and/or before use for the first time or after assembly at the new site location and then subsequent to this that it is inspected at suitable intervals
- Inspections: a system must be put in place to ensure appropriate inspections to be carried out and ensure that actions identified by inspections are tracked and closed out, checklist should be included of hazards, process of prioritizing actions, inspections should involve managers, employee representatives, employees
- Hazard reporting: near misses should be reported as well, process to monitor actions/improvements, simple process of identifying hazards and closing out actions, robust close out process, encourage person who identified the hazard to take action as well, responsibility should be given to identified individuals to close out actions
- Every employer should ensure that work equipment is constructed or adapted as to be suitable for the purpose for which it is used or provided. In selecting work equipment, every employer must have regard to the working conditions and to the risks to the health and safety of persons which exist in the premises or undertaking in which that work equipment is to be used and any additional risk posed by the use of that work equipment. Every employer shall ensure that work equipment is used only for operations for which, and under conditions for which, it is suitable.
- Every employer must ensure that work equipment is maintained in an efficient state, in efficient working order and in good repair and that where any machinery has a maintenance log, the log is kept up to date.
- Every employer must ensure that, where the safety of work equipment depends on the installation conditions, it is inspected after installation and before being put into service for the first time; or after assembly at a new site or in a new location, to ensure that it has been installed correctly and is safe to operate. Work equipment exposed to conditions causing deterioration which is liable to result in dangerous situations has to be inspected at suitable intervals; and each time that exceptional circumstances which are liable to jeopardize the safety of the work equipment have occurred, to ensure that health and safety conditions are maintained and that any deterioration can be detected and remedied in good time. Every employer shall ensure that the result of an inspection made under this regulation is recorded and kept until the next inspection under this regulation is recorded. Every employer shall ensure that no work equipment leaves his undertaking; or if obtained from the undertaking of another person, is used in his undertaking, unless it is accompanied by physical evidence that the last inspection required to be carried out under this regulation has been carried out.
- Where the use of work equipment is likely to involve a specific risk to health or safety, every employer shall ensure that the use of that work equipment is restricted to those persons given the task of using it; and repairs, modifications, maintenance or servicing of that work equipment is restricted to

those persons who have been specifically designated to perform operations of that description (whether or not also authorized to perform other operations).

- Every employer shall ensure that all persons who use work equipment have available to them adequate health and safety information and, where appropriate, written instructions pertaining to the use of the work equipment, he must ensure that any of his employees who supervises or manages the use of work equipment has available to him adequate health and safety information and, where appropriate, written instructions pertaining to the use of the work equipment.

References of the selected policy documents

1. <http://www.cementindustry.co.uk/PDF/SlipsTripsFallsGuidanceJune%202005.pdf> The Cement Industry, 2005 Guidance to prevent slips, trips and falls
2. <http://www.opsi.gov.uk/si/si1998/19982306.htm> statutory instrument 1998 No. 2306 The Provision and Use of Work Equipment Regulations 1998

CONCLUSIONS

A wide range of policies exists aimed at occupational safety and most specifically at the reduction of fatalities. Even though the occupational fields responsible for the majority of fatal accidents and injuries are very diverse, ranging from the field of agriculture to transport and construction, all share some common themes relevant to injury prevention. For example, better training of workers, careful handling of equipment, responsible personal behaviour and proper risk assessments carried out by the employer was components of policies found in all occupational fields.

As our review included only those occupations in which fatal and non-fatal occupational injuries, injury related disability and perceived risk of injury were most common, other occupations in which significant numbers of death and injuries occur will have been excluded. Our findings cannot be generalised to these other occupations. Furthermore, many factors which influence the risk of occupational injury change over time, so the ageing of the population, population shifts through migration, the development of new technology and machinery and the development of new forms of work will require injury prevention policies to develop and adapt in order to continue to be effective.
