Health Promotion in Tertiary Settings: reducing alcohol-related harm

A review to inform policy and practice

A report prepared
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Contents

Executive Summary

It is widely recognised that the environments in which we live, work, learn and play impact in a significant way upon the way we live our lives. This has certainly been shown to be the case in terms of the various ways in which the wider environment can influence alcohol use.

There is general agreement that addressing alcohol-related harm within tertiary settings is an important priority - the impact of alcohol-related harm on individual students and on those around them can be significant. The transition to tertiary study can be challenging and may mean that young people are more vulnerable to misusing alcohol.

Reducing alcohol-related harm within tertiary settings will contribute towards improved academic, health, and social outcomes for students (and their families), tertiary institutions, and the wider community.

A health promoting approach should empower individuals to assume more power over the factors that affect their health, encourage all those concerned to participate in the initiative, be holistic, involve inter-sectoral collaboration, consider equity and social justice, be sustainable, and use a variety of approaches in combination.

Multiple different interventions implemented in a systematic way, are more effective than single interventions.

It is important that health promoting approaches in tertiary settings take a whole of system approach and that comprehensive, campus-wide approaches are implemented. In addition, it is important that participatory approaches are used to engage the voice of students and those in the wider community. Building on the strengths of the setting, it is important that trans-disciplinary collaborations, and cross-sector partnerships are developed.

A health promoting approach seeks to reduce alcohol-related harm by focusing on strategies that create environments (e.g. via organisational, economic, educational and political actions) that support healthy behaviours - making the healthy choice the easy choice.

Environmental-level strategies can have a greater impact on reducing alcohol-related harm than strategies targeting the drinking behaviours and attitudes of individuals. Environmental strategies that are more likely to be effective focus on the implementation of comprehensive policies and involve the delivery of integrated programmes incorporating multiple complementary components.

In terms of providing individually-focused strategies, the evidence supports the screening and implementation of opportunistic brief interventions, in student health services, as a robust first step in assessing and addressing the needs of individual students. Education and awareness programmes, and behavioural skills-based approaches, although targeting individuals, align well with environmental-level strategies.

Tertiary settings are encouraged to consider the following recommendations to reduce alcohol-related harm:

- Use a whole of setting approach informed by best-evidence health promoting principles
- Develop a comprehensive strategic action plan, involving key stakeholders
- Identify environmental-level strategies and select multiple best-evidenced interventions
- Formally evaluate interventions and report the findings

The problem of alcohol-related harm in tertiary settings is a complex one. Addressing this complexity informed by best-evidence allows those implementing alcohol-harm minimisation strategies to lead change – change in the 'culture of alcohol' and in the wider environment – which will support students to achieve both academic success and wellbeing.

Health Promotion in Tertiary Settings: reducing alcohol-related harm

Introduction

Without a doubt, the answer to the question of how best to reduce the burden of alcohol-related harm globally, nationally, and within specific New Zealand settings is a complex one. Tertiary settings are, unfortunately, not exempt from this inherent complexity and its associated challenges.

Although there is general agreement that alcohol use among tertiary students has significant negative impacts for many students[1], campuses and communities, agreement regarding the best options for reducing or combating these myriad harms has not been so readily agreed.

This rapid review, informed by both published scientific literature and by information gathered regarding current endeavours in the global tertiary sector, focuses on identifying health promoting approaches that offer promise – based on the current best-evidence available – in bringing about a reduction in alcohol-related harm in tertiary settings and highlights options to inform both policy and practice.

It is almost certain, that those working in and with tertiary settings will be able to identify examples of their current approaches and initiatives among the options presented. In addition, it is hoped that this document will support settings to advocate for, and to implement, a range of initiatives that will contribute towards reducing the impacts of alcohol-related harm among their students, in tertiary settings generally, and within the wider community.

These findings are presented within the contextual understandings of the World Health Organization's *Global strategy to reduce the harmful use of alcohol*[2], the New Zealand Law Commission's report, *Alcohol in Our Lives: Curbing the Harm*[3], the World Health Organization sponsored publication, *Alcohol: No Ordinary Commodity*[4], and the 5+ Solution[5] each of which are based on the current best-available evidence in relation to alcohol harm minimisation at a population level. Want to know more? Follow the links provided in the footnotes below.

Rationale

The transition from childhood to adulthood sees young people significantly increasing in their cognitive abilities and yet this phase of life also corresponds with a substantial increase in morbidity and mortality among adolescent New Zealanders, much of which associated is with high levels of risky behaviour.[6] Risk-taking among adolescent[7] New Zealanders is high (by international standards) and excessive alcohol use is common.[6] Of particular concern is the heavy burden of alcohol-related harm that Māori young people experience compared with other young New Zealanders.[8]

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[1] Tustin, R. (2010). Tertiary Students and Alcohol Use in Aotearoa-New Zealand: An update of the research literature (2004-2010). Alcohol Healthwatch. Available at: http://www.ahw.org.nz/resources/Research/Literature%20Review%20Final%202%20Dec%202010.pdf

[2] World Health Organization. (2010). *Global strategy to reduce the harmful use of alcohol*. Geneva: WHO Available at: http://www.who.int/substance_abuse/alcstratenglishfinal.pdf?ua=1

[3] NZ Law Commission, (2010). *Alcohol in Our Lives: Curbing the Harm*. Wellington: Law Commission. Available at: http://www.lawcom.govt.nz/sites/default/files/projectAvailableFormats/NZLC%20R114.pdf

[4] Barbor, T.F., et al., (2003). *Alcohol: No Ordinary Commodity*. Oxford University Press. Also 2nd edition (2010) read a summary of the 2nd edition at: http://www.ndphs.org///documents/2253/Babor_alc%20no%20ordinary%20comm%20second%20edition.pdf

[5] The 5+ Solution http://www.alcoholaction.co.nz/?page_id=19 based on the policy directives in Barbor et al. (2003). *Alcohol: No Ordinary Commodity*

[6] Prime Minister's Chief Science Advisor/Peter Gluckman. (2011*). Improving the Transition: Reducing Social and Psychological Morbidity During Adolescence.* Office of the Prime Minister's Science Advisory Committee: Auckland.

[7] Definition of 'adolescence': adolescence is defined in the 'Gluckman report' as the period that extends from entry into puberty until the individual is fully accepted as an adult in the particular societal context.

[8] Kypri, K. et al., ((2012). Web-based alcohol intervention for Māori university students: double-blind, multi-site randomized controlled trial. *Addiction, 108* 331-338.

The transition to tertiary study can prove particularly challenging with many young people experiencing an extended period of significant adjustment as they manage the demands of the new situation they find themselves in. These multiple pressures (e.g. course/study demands, new living situations, financial struggle, loneliness, peer-pressure etc.) can make students all the more vulnerable and may increase the likelihood that they will engage in risk-taking behaviours such as misusing alcohol.

Alcohol misuse is also associated with other risk-taking behaviours and also with numerous negative consequences.[9] In addition, students report drinking at higher levels than their peers who are not in tertiary education,[10] providing a clear rationale for initiatives that seek to reduce alcohol-related harm in tertiary settings.

Reducing alcohol-related harm within tertiary settings will contribute towards improved academic, health, and social outcomes for students (and their families), tertiary institutions, and the wider community.

Methodology

Search Strategy

A literature search was undertaken (Medline, PubMed, PsycInfo, Cochrane Databases, Google Scholar) to identify published secondary research (systematic reviews and meta-analyses) focusing on interventions that had been successful in reducing the impact of alcohol-related harm in tertiary settings. Individual studies were also considered, particularly if secondary research was not identified, and where the literature explored or reported the findings of health promoting approaches in tertiary settings. References cited by retrieved papers were examined where they appeared useful but this was not done routinely.

In addition, a number of websites with a focus on alcohol harm reduction and/or tertiary settings and/or health promoting approaches were identified and potentially useful research papers, literature reviews, strategic documentation, recommended frameworks, and conference presentations were retrieved providing a source of grey literature to inform this review.

Contact was also made with a Healthy University coordinator based at the University of Central Lancashire (UCLan) who provided additional information regarding undertakings at UCLan and across the wider United Kingdom's Healthy Universities Network.

Limitations of this review

In interpreting the findings of the literature presented in this review, several limitations imposed by the nature of the evidence warrant mention. Ideally, this review would be informed by secondary research in the first instance. However, health promotion initiatives are rarely assessed using randomised controlled trials (generally considered the gold standard study design in an evidence-based approach) which largely provide the basis for systematic reviews. Randomised controlled trials rely on tightly defined interventions for which there are simple and direct relationships between inputs and outcomes[11] and many health promotion initiatives do not readily fit this model.

[9] Kypri, K., Paschall, M.J., Langley, J., Baxter, J., Cashell-Smith, M., and Bourdeau, B. (2008). Drinking and Alcohol-Related Harm Among New Zealand University Students: Findings From a National Web-Based Survey. *Alcoholism: Clinical and Experimental Research.* Vol *33*:2 p 307-314
[10] Kypri, K., Cronin, M., & Wright, C.S. (2005) Do university students drink more hazardously than their non-student peers? *Addiction* 100:713-14
[11] International Union for Health Promotion and Education (2000). *The Evidence of Health Promotion Effectiveness*. Brussels: European Commission.

Similarly, the inclusion criteria of systematic reviews can mean that there is a lack of studies by which to assess an intervention. This does not, however, imply that an approach is not effective.

In terms of health promotion effectiveness: *a lack of evidence of effectiveness is not the same as evidence of ineffectiveness*. It may mean instead that more or higher quality studies are yet needed to determine effectiveness.

Other important limitations of systematic reviews in considering health promotion effectiveness, are that they frequently do not take into account the transferability of the intervention, the stage of development of the intervention, how well the particular intervention was carried out, and the interests of key stakeholders. In addition, considerable variability can apply to particular interventions and types of interventions. Some interventions such as brief interventions, delivered to individual students, are relatively straightforward to implement and consequently more research is available considering their effectiveness than, for example, research exploring broader environmental approaches which are relatively difficult to study but of particular relevance to this review.

Consequently, given the absence of systematic reviews and meta-analyses focusing on environmental-level approaches to reducing alcohol-related harm in tertiary settings, this review provides instead the findings of large studies implemented in multiple tertiary settings. Environmental-level approaches are strategic responses that aim to alter the immediate cultural, social, physical and economic environments in which students make their decisions about alcohol consumption. Strategies can encompass, for example, the implementation of new policies, organisational change, and educational, economic and wider legislative or political actions and reforms.

This review does not claim to provide an exhaustive search of the literature on the issue of reducing alcohol-related harm in tertiary settings but offers the reader an overview of current understandings given the aforementioned limitations and the search strategy as implemented.

Structure of this review

The findings of this review are presented in three sections. The first section presents a brief overview of the features of effective health promotion programmes and frameworks that have been found to be effective or have shown promise in tertiary settings.

The second section, informed by the literature, provides an overview of initiatives that have been found to be effective (by varying degrees) in reducing alcohol-related harm in tertiary settings. These include initiatives focused on the following 'audiences':

- tertiary settings and the surrounding community,
- the collective student population/student body, and
- individual students.

} Environmental-level strategies

The third section summarises the findings of sections one and two and in addition, the recently released (October 2015) College AIM[12] – an Alcohol Intervention Matrix – produced by the United States National Institute on Alcohol Abuse and Alcoholism, is presented and some key findings summarised. Finally, on the basis of the evidence presented, a series of recommendations is made to inform the next steps of those working to reduce alcohol-related harm in tertiary settings.

[12] Newly released (October 2015) the College AIM (Alcohol Intervention Matrix) offers a matrix of individual- and environmental-level strategies. See: http://www.collegedrinkingprevention.gov/CollegeAIM/Introduction/default.aspx

A health promoting approach to alcohol harm minimisation (tertiary settings)

Underlying principles of a health promoting approach[13]

Figure 1: Based on the World Health Organization's Principles of Health Promotion

Empowerment	Health promotion initiatives should enable individuals and communities to assume more power over the personal, socio-economic and environmental factors that affect their health.
Participative	Health promotion initiatives should involve those concerned in all stages of planning, implementation and evaluation.
Holistic	Health promotion initiatives should foster physical, mental, social and spiritual health.
Inter-sectoral	Health promotion initiatives should involve the collaboration of agencies from relevant sectors.
Equitable	Health promotion initiatives should be guided by a concern for equity and social justice.
Sustainable	Health promotion initiatives should bring about changes that individuals and communities can maintain once initial funding has ended.
Multi-strategy	Health promotion initiatives should use a variety of approaches in combination with one another, including policy development, organisational change, community development, legislation, advocacy, education and communication.

The above principles (see Figure 1) identified by the World Health Organization underpin health promotion generally and are evident in the approaches presented in this section. The Health Evidence Network reports that in a school setting health promotion programmes are most effective if they are sustained, multifactorial and take a whole school approach.[14] Furthermore, in considering an evidence base for expanding a health promoting schools-type initiative into higher education settings in the United Kingdom Warwick et al.,[15] stated in 2008 that 'while it is not possible to state with certainty that multi-component, whole-setting approaches are more successful in college and university settings than one-off activities, the evidence points in this direction' (p 27).

Toomey et al.,[16] report that environmental strategies, particularly those that combine a variety of approaches, appear to be most effective in decreasing alcohol use and alcohol-related problems in tertiary populations. Babor et al.,[4] note that multiple interventions implemented in a systematic way are more effective than single interventions and Herring et al.,[17] that a 'stand-alone' approach is 'no longer accepted as a suitable model for dealing with complex health, criminal justice and social problems' (p. 12). The examples which follow have integrated the aforementioned health promoting principles into their approaches.

Key principles for action: International Charter for Health Promoting Universities and Colleges[18]

The recently published (October 2015) **Okanagan Charter** is an international charter for health promoting universities and colleges that was developed at the recent (June 2015) international conference on health promoting universities and colleges. Based on the Ottawa Charter for Health

[13] Rootman, I. et al (Ed.). (2001). Evaluation in health promotion: Principles and perspectives. Denmark: WHO cited in Health Service Executive. (2011) The Health Promotion Strategic Framework (2011) Available at: http://www.healthpromotion.ie/hp-files/docs/HPSF_HSE.pdf

[14] Stewart-Brown S (2006). What is the evidence on school health promotion in improving health or preventing disease and, specifically, what is the effectiveness of the health promoting schools approach? Copenhagen, WHO Regional Office for Europe

[15] Warwick, I., Statham, J., & Aggleton, P. (2008). *Healthy and health promoting colleges - an evidence base*. Institute of Educ., Uni of London.

[16] Toomey, T.L., Lenk, K.M. & Wagenaar, A.C. (2007). Environmental Policies to reduce College Drinking: An Update of research findings. *Journal Stud. Alcohol Drugs, 68*: 208-219.

[17] Herring, R., Bayley, M., Thickett, A. Stone, K., & Waller, S. (2011). *Identifying promising approaches and initiatives to reducing alcohol related harm. Report to Alcohol Research UK and the Joseph Rowntree Foundation.* Middlesex University, Drug and Alcohol Research Centre

[18] New Zealand is listed as one of 45 countries that supported and provided input to the development of the Charter

Promotion (see Figure 2),[19] which emphasises the interconnectedness of individuals and their environments, the Okanagan Charter calls upon higher education institutes 'to incorporate health promotion values and principles into their mission, values and strategic plans, and model and test approaches for the wider community and society'. (p. 5)

Figure 2: Ottawa Charter for Health Promotion
Five key action areas

Figure 3: Okanagan Charter: A Call to Action

Okanagan Charter
Call to Action 1: Embed health into all aspects of campus culture, across the administration, operations and academic mandates

Call to Action 2: Lead health promotion action and collaboration locally and globally

The Charter presents **'Key Principles for Action'** which align well with the literature on effective health promotion.[20] Key principles include:

- use settings and whole system approaches
- ensure comprehensive and campus-wide approaches
- use participatory approaches and engage the voice of students and others
- develop trans-disciplinary collaborations and cross-sector partnerships
- promote research, innovation and evidence-informed action
- build on strengths
- value local and indigenous communities' contexts and priorities
- act on an existing universal responsibility

Want to know more? Read the Okanagan Charter embedded here:

Okanagan_Charter_Oct_6_2015.pdf

A health promoting and quality improvement approach

The **National College Health Improvement Plan** (NCHIP) created in 2010 set out to bridge the gap between the evidence that existed for addressing high-risk drinking and what was actually occurring in practice on college campuses in the United States.

In June, 2011 NCHIP launched an initiative bringing together 32 colleges and universities to 'work collaboratively over a two-year period to learn about and implement a comprehensive, multi-pronged approach using both a public health and improvement focus, in addressing high-risk

[19] First International Conference on Health Promotion. (1986). The Ottawa Charter for Health Promotion. World Health Organization: Ottawa. Available at: http://www.who.int/healthpromotion/conferences/previous/ottawa/en/

[20] The literature also aligns well with Aotearoa, New Zealand perspectives such as Te Whare Tapa Whā, Te Pae Mahutonga and Te Tiriti O Waitangi (all provide important New Zealand perspectives in terms of holistic health and health promoting approaches).

drinking.'[21] (p. vii). The 'collaborative improvement model' involved the 32 teams in a series of learning sessions where experts presented best-evidence approaches for building comprehensive alcohol harm reduction and prevention systems. Working collaboratively, teams then implemented strategies on their own campuses using a rapid cycle of testing (Plan – Do – Study – Act) to establish both outcome and process-level measures.

In June, 2013 the teams met to reflect on the results of the collaborative as a whole. The accomplishments included the following (selected extracts from page vii):

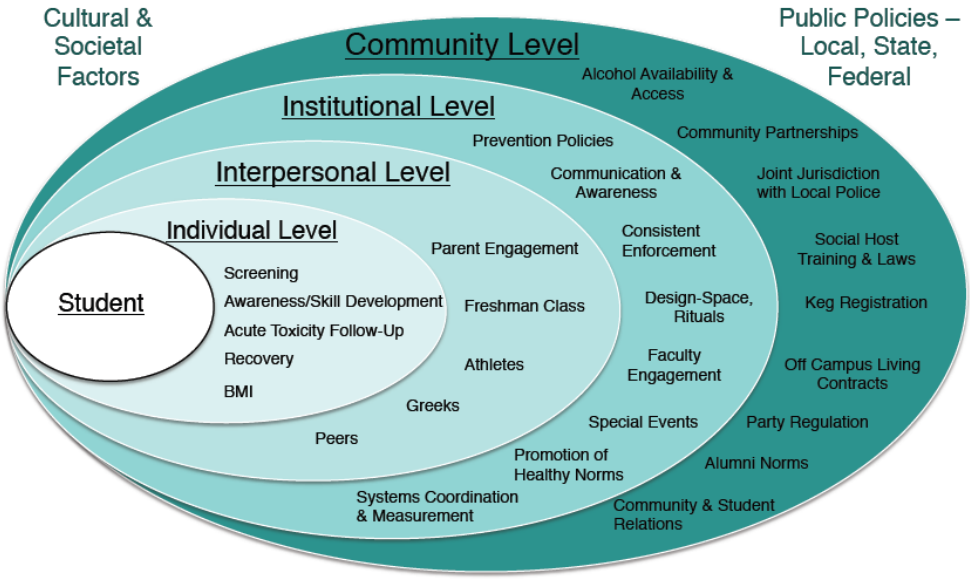
- over 300 new initiatives tested and implemented with positive impact (across 32 teams)
- promising early results for several teams that implemented evidence-based strategies at multiple levels and committed to full participation and consistent measurement, and
- a proliferation of teams using a multi-disciplinary, comprehensive systems approach to addressing high-risk drinking on their campuses.[21]

Those settings that reported the most success had been able to form teams with a wide stakeholder group including upper level administrators and community partners.[22]

The 'collaborative improvement model' offers a promising approach for bringing about positive change and improvement in addressing the complex issue of alcohol-related harm in tertiary settings. Utilising a collaborative approach with a focus on quality improvement means that gaps in understanding and variations in implementation and practice can be addressed, allowing organisations to work towards rapid, measureable and sustainable change in their own settings.

Also of interest is the use of a 'socioecological campus alcohol harm prevention system' (see Figure 4) which clearly articulates the 'audiences' for the different initiatives; from the individual level to the community level.

Figure 4: Socioecological campus alcohol harm prevention model[21]



Want to know more? Read about the Learning Collaborative on High-risk Drinking here (or use the link in the footnote below).[21]

[21] Johnson, L.C. (2014). *Using a Public Health and Quality Improvement Approach to Address High-Risk Drinking with 32 Colleges and Universities: White Paper.* National College Health Improvement Plan. Available from: http://safesupportivelearning.ed.gov/sites/default/files/NCHIP%20WhitePaper%205%208%2014FINAL.pdf

[22] Lanter, P.L., et al., (2015). Change is Possible: Reducing High-Risk Drinking Using a Collaborative Improvement Model. *Journal of American College Health, 63*(5).

A Healthy Universities Approach – United Kingdom network (established 2006)

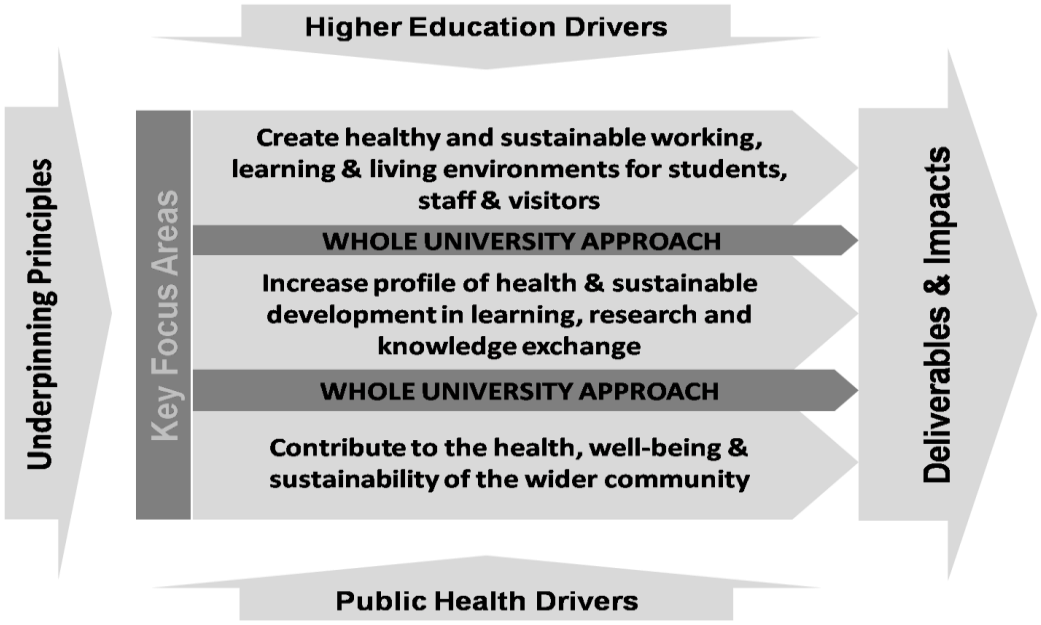
'*A Healthy University aspires to create a learning environment and organisational culture that enhances the health, wellbeing and sustainability of its community and enables people to achieve their full potential.*'

Healthy Universities' UK website

As articulated in the Okanagan Charter the Healthy Universities approach endorses a whole of system approach, focused on acknowledging the interrelationships between the various aspects of university life. To this end the Healthy Universities UK website aims to encourage a whole of university approach to health and wellbeing across the national network in the United Kingdom. Managed by the University of Central Lancashire and Manchester Metropolitan University, the website offers a range of resources and a toolkit incorporating a range of guidance packages. A number of case studies are also provided, some of which highlight the efforts of different universities to address alcohol-related harm.

The Healthy Universities approach seeks to create healthy and sustainable environments for students, staff and visitors (see Figure 5) whilst contributing to the health and wellbeing of the wider community. A number of core principles underpin the Healthy Universities approach. Derived from values that characterise both higher education and public health, these principles are considered essential if the integrity of the approach is to be ensured.

Figure 5: Healthy Universities UK: A Conceptual Model Available at: http://www.healthyuniversities.ac.uk/getting-started.php?s=203&subs=51



The underpinning principles of the Healthy Universities UK approach are as follows:

- equality and diversity
- participation and empowerment
- partnership
- sustainability
- holistic and whole system health
- evidence-informed and innovative practice, and
- evaluation, learning and knowledge exchange.

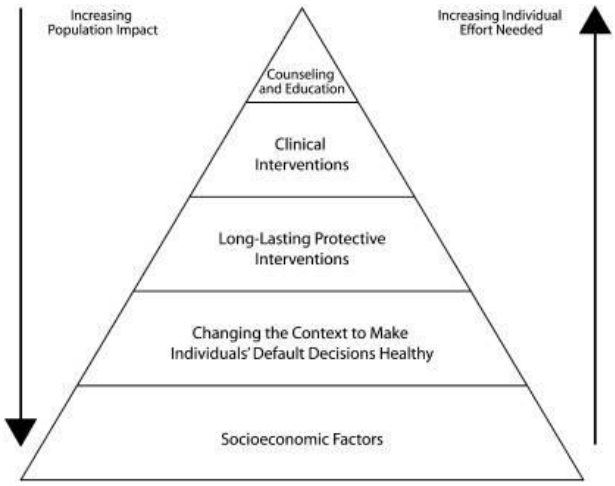
Want to know more about the Healthy Universities approach in the UK? Visit the Healthy Universities UK website at http://www.healthyuniversities.ac.uk/

Making the healthy choice the easy choice

Each of the health promoting approaches presented in this section follows a 'whole of system' approach whilst acknowledging the significant influence of the wider environment in shaping the health and wellbeing of tertiary students.

It is now widely recognised that the environments in which we live, work, learn and play impact in a highly significant way upon the way we live our lives. This has certainly been shown to be the case in terms of the various ways in which the wider environment can influence alcohol use[4,23] and offers an explanation as to why education campaigns alone have limited success in bringing about a change in alcohol-use behaviour.

Figure 6: Health Impact Pyramid[24]



The first and second tiers (counting from the base of the pyramid) of the 'Health Impact Pyramid' illustrate how changing the socioeconomic and environmental context in which we live can achieve change for many compared with interventions designed to help individuals only (e.g. tiers 4 and 5). First and second tier interventions create settings where individuals are more likely to select the healthy option.

A health promoting approach seeks to reduce alcohol-related harm by focusing on strategies that create environments (e.g. via organisational, economic, educational and political actions) that support healthy behaviours - making the healthy choice the easy choice.

Reducing alcohol harm in tertiary settings

The **'Prevention Paradox'** – We know that the heaviest drinkers are at greatest risk for harm, however, the risk of harm is not zero among non-drinkers or lower level drinkers in tertiary settings. Because this group is numerous these individuals are likely to experience the majority of harms. ***'This paradoxical pattern suggests we moderate consumption among the majority using environmental approaches…'*** [25](p. 247)

Research supports the use of comprehensive, integrated programmes with multiple complementary components that address the tertiary setting/campus and the community surrounding it, the student body as a whole, and individuals.[26]

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[23] Howat, P., Sleet, D., Maycock, B., & Elder, R. (2007). Effectiveness of Health Promotion in Preventing Alcohol Related Harm. In McQueen, D.V. & Jones, C.M. (Eds), *Global Perspectives on Health Promotion Effectiveness.* (pp 163-178). International Union for Health Promotion and Education.
[24] Frieden, T.R. (2010). A Framework for Public Health Action: The Health Impact Pyramid. *American Journal of Public Health, 100*(4), 590-595. doi: 10.2105/AJPH.2009.185652
[25] Weitzman, E.R. & Nelson, T.F. (2004). College Student Binge Drinking and the 'Prevention Paradox': Implications for Prevention and Harm Reduction. *Journal of Drug Education, 34*(3) 247-266.
[26] National Institute on Alcohol Abuse and Alcoholism. (2002). *A Call to Action: Changing the Culture of Drinking at U.S. Colleges.* U.S. Department of Health and Human Services. Available at: http://www.collegedrinkingprevention.gov/niaaacollegematerials/taskforce/taskforce_toc.aspx

Consequently this section presents the key findings of the literature review, offering a brief overview of the evidence for initiatives delivered in tertiary settings according to the target audience. As previously mentioned, given the absence of systematic reviews or meta-analyses, exploring these issues, this section focuses on the findings of large, multi-site interventions where they have shown promise.

At a population-level international research has concluded that alcohol taxation, restrictions on the availability of alcohol and measures to reduce drink driving are the most effective interventions to reduce alcohol-related harm.[4] Also considered cost-effective in reducing alcohol harm is a ban on alcohol advertising.[27] Those interventions identified as less effective include alcohol education (alone), public awareness programmes and designated driver schemes.[4, 26] Anderson et al., do note, however, the important role that public information and education-type programmes can play in 'providing information and in increasing attention and acceptance of alcohol on political and public agendas' (p. 2234).[27]

Presented below are a series of initiatives that have focused on environmental-level strategies and the findings of some individual-level approaches delivered in tertiary settings. Initiatives focused on the individual are not normally considered health promotion per se but are presented here in brief as they provide an important component of a multi-faceted approach to addressing alcohol-related harm.

Environmental-level strategies: examples of initiatives focused on the collective student body, tertiary campuses and the communities surrounding them

The attitudes to, and culture of, alcohol use in communities surrounding tertiary institutions can impact significantly on students. **The Harvard College Alcohol Study**[28] (including over 50,000 student participants at 120 colleges) found that the prevalence of heavy drinking on campus was associated with the density of alcohol outlets and the laws (and their enforcement) in the communities surrounding colleges in the United States. An association between the strength of alcohol policies and the drinking patterns of university students has also been noted - students in colleges with more alcohol control policies appear less likely to engage in binge drinking.[28,29]

These findings highlight the significance of campus alcohol policies and the potential importance and usefulness of Alcohol Bans and Local Alcohol Plans to produce environmental change in the New Zealand context.

Community members are also likely to benefit from working together with tertiary settings to reduce the impact of alcohol in terms of such issues as noise complaints, property damage and assaults. A number of campus community coalitions provide excellent examples of comprehensive interventions to reduce alcohol-related harm within the wider community. One example is the **Safer California Universities Randomized Trial** involving 14 large public universities. Half the universities were randomised to the 'Safer intervention' and a number of environmental interventions were implemented including 'nuisance party enforcement operations', 'minor decoy operations' (similar to New Zealand's Controlled Purchase Operations), 'driving under the influence

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[27] Anderson, P., Chisholm, D. & Fuhr, D. (2009). Effectiveness and cost-effectiveness of policies and programmes to reduce the harm caused by alcohol. *Lancet,* 373, 2234-46

[28] Wechsler, H., & Nelson, T.F. (2008). What we learned from the Harvard School of Public Health College Alcohol Study: Focusing attention on college student alcohol consumption and the environmental conditions that promote it. *Journal of Studies on Alcohol and Drugs, 69*(4), 481-490. Available at: http://archive.sph.harvard.edu/cas/What-We-Learned-08.pdf

[29] Nelson, T.F., Naimi, T.S., Brewer, R.D., & Wechsler, H. (2005). The state sets the rate: The relationship among state-specific college binge drinking, state binge drinking rates, and selected state alcohol policies. *American Journal of Public Health, 95*: 441-446

checkpoints', 'social host ordinances', and the use of campus and local media to highlight the strategies.

The campuses involved in the trial differed in their level of implementation, with one campus not instigating any aspects of the initiative. Although this campus was still included in the evaluation (based on 'intent-to-treat) the researchers reported a significant reduction in both the incidence and likelihood of intoxication at off-campus parties (OR 0.81, 95% CI 0.68-0.97, *p<0.05)* and bars and restaurants (OR 0.76, 95% CI 0.62-0.94, *p<0.01)*, and a lower level of intoxication was also observed for the 'Safer intervention' universities the 'last time' students drank in any setting (OR 0.80. 95% CI 0.65-0.97, *p<0.05*).[30] Of note, the authors report that the intervention effects were strongest for those settings that achieved the highest levels of implementation (Intraclasss correlation coefficients ranged from .01 to 0.5 (M=0.03)).

Intervention effects are likely to be strongest in settings where the highest levels of implementation occur. The A Matter of Degree Program (below) also demonstrated this finding.

The **A Matter of Degree (AMOD) Program** also focused on creating campus-community partnerships to address the student environment. The ten campuses invited to join the programme were characterised by high student binge-drinking rates, a campus history of addressing alcohol issues, a willingness to openly discuss the issues, support of the chief executives (of both the community and the university), and a willingness to work with community partners. The interim AMOD evaluation[31] undertaken by the Harvard School of Public Health (1997-2001) compared the drinking and harm patterns of the 10 AMOD schools with 32 non-AMOD colleges that were part of the Harvard College Alcohol Study. Although, no statistically significant changes were found for the 10 AMOD colleges, researchers noticed significant (although small) differences in the findings of the AMOD campuses, depending on the number of interventions implemented (i.e. how closely colleges implemented the environmental strategies), and divided the AMOD group into two groups: 'high' and 'low' implementation campuses.

Table 1: Alcohol-related harms over time at high AMOD sites[a] – selected extract only[31]

	Prevalence by year					Change 1997 to 2001	Test for trend
Harm	**1997**	**1998**	**1999**	**2000**	**2001**	**% (CI)[b]**	***p* value[b]**
Hangover	71.6	78.6	74.6	70.4	72.6	0.77 (0.62-0.95)	**0.0001***
Miss a class	46.6	51.4	43.1	34.2	39.5	0.60 (0.50-0.73)	**<.0001***
Fell behind in work	32.4	35.7	31.0	26.0	27.6	0.77 (0.62—0.94)	**0.0002***
Forgot where they were or what they did	39.2	45.5	37.3	35.5	34.2	0.77 (0.63-0.93	**0.0001***
Five or more alcohol-related problems	31.6	34.8	28.4	23.7	26.0	0.70 (0.56-0.86)	**<.0001***

[a] Among those who drank in the past year only [b] Adjusted for site survey response rate * Significant at 0.01 level

In the high AMOD group statistically significant decreases were noted in alcohol consumption, alcohol-related harms (see Table 1 above), and second-hand effects. This same pattern was not observed at the low AMOD implementation campuses or at the 32 comparison colleges. The high AMOD group showed a decreasing relative risk over time for 9 of 11 alcohol-related harm outcomes. Similar reductions did not occur in the five low AMOD universities (only three harms

[30] Saltz, R.F., Paschall, M.J., McGaffigan, R.P. & Nygaard, P.M.O. (2010). Alcohol Risk Management in College Settings: The Safer California Universities Randomized Trial. *The American Journal of Preventive Medicine, 39*(6) 491-499

[31] Weitzman, E.R., Nelson, T.F., Lee, H. & Wechsler, H. (2004). Reducing Drinking and related Harms in College Evaluation of the 'A Matter of Degree' Program. *American Journal of Preventive Medicine, 27*(3) 187-195

declined significantly), nor in the 32 non-AMOD comparison colleges (one harm declined in the comparison schools and four increased).[31]

Environmental interventions implemented included a focus on the following areas (some examples of initiatives also provided):

- availability - keg registration, mandatory responsible beverage training
- legal sanctions- campus-community police collaboration on party enforcement, increasing penalties and sanctioning policies
- physical context – substance-free residence halls, outreach and education to landlords
- advertising & promotion – ban on alcohol ads in student newspapers, ban on alcohol-related items in student bookstore
- key influencers – parental notification policy, staffed and trained peer intervention teams, increased outreach to faculty
- sociocultural context – alcohol-free programming, letter-writing campaign

The researchers also investigated the features of the successful coalitions (i.e. the five colleges in the 'high' AMOD implementation group) and found evidence of:

- more formal structures and processes
- higher member involvement in decision-making
- assumptions that the environment was changeable and supportive
- clear, flexible, detailed strategic and action plans
- staff facilitation (as opposed to directive)
- responsible, trusted leadership, and
- a process that was consensus-driven.

The funding for AMOD was cut in 2005 meaning that this research will remain incomplete, with the results from six universities not included in the final report. The Robert Woods Johnson Foundation is reported to have viewed their AMOD partnership with the American Medical Association as a 'mission accomplished' and changed its funding priorities from high-risk drinking to vulnerable populations and addiction treatment.[32]

Major AMOD results

Half of the AMOD colleges that incorporated more environmental policies and programs had significant changes in drinking and related harms when compared to the 32 non-AMOD colleges.

> "If vigorously pursued, [the AMOD comprehensive college-community environmental interventions] can reduce drinking problems specifically among college students."
> – Ralph W. Hingson, ScD, MPH, director, Division of Epidemiology and Prevention Research, National Institute of Alcohol Abuse and Alcoholism

The **Study to Prevent Alcohol Related Consequences** (SPARC) initiated in North Carolina involved ten universities being randomised to either an intervention or a comparison group. The universities in the intervention arm were assigned a community/campus organiser who was responsible for bringing together a coalition of community and campus members (**community-organising approach)** to implement a range of environmental strategies to reduce high-risk drinking and its associated consequences. The environmental strategies included: campus policy development,

[32] Zeigler, D. (n.d). How a private grant increased physicians' role and helped change domestic and global alcohol control policy: A Matter of Degree Program. Poster Presentation, American Medical Association

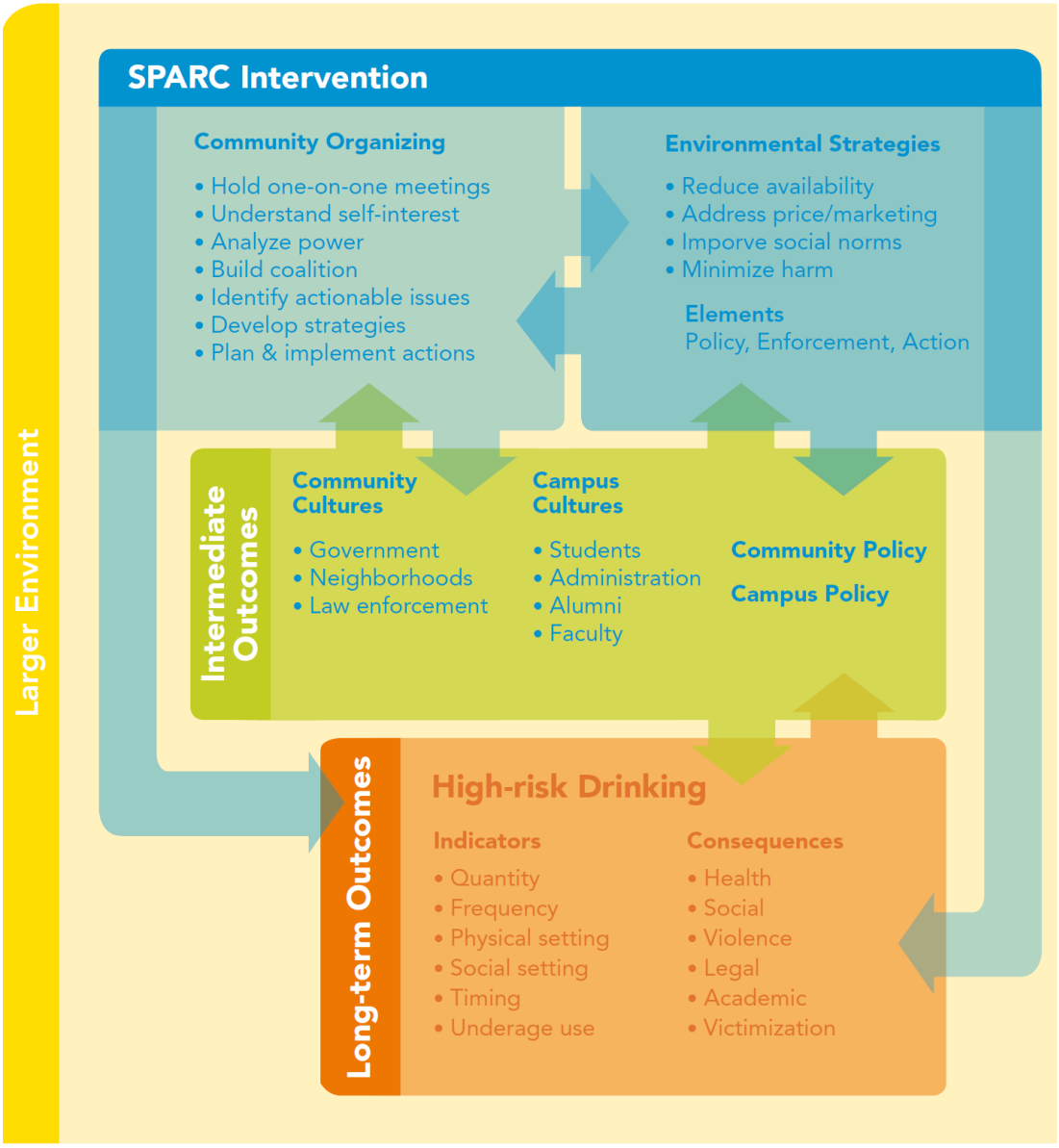
working with local law enforcement particularly at high-risk times, party patrols, comprehensive social norms marketing campaigns, a landlord initiative, working with alcohol retailers (responsible service focus) and increased communication between campuses and community law enforcement.

Implemented over a period of three years, the initiative showed small but statistically significant[33] differences in two areas – severe consequences experienced by students due to their own drinking and alcohol-related injuries experienced by others.

Wolfson et al.,[34] estimate that on a campus of approximately 11,000 students these reductions in harm will result in 228 fewer students experiencing at least one severe consequence of drinking over the course of a month and some 107 fewer cases of students injuring others over the course of a year.

'This is the basic principle of public health – small changes at the population level can translate into significant improvements in the health of a population.' Mark Wolfson

Figure 7: SPARC Intervention – Conceptual model



[33] Random coefficient modelling undertaken and variables with low prevalence analysed using logistic models; for more detail please see the paper below, Wolfson, M. et al.

[34] Wolfson, M. et al., (2012). Impact of a Randomized Campus/Community Trial to Prevent High-Risk Drinking Among College Students. *Alcoholism: Clinical and Experimental Research, 36*(10) 1767-1778.

Some studies have explored the effectiveness of **parent-based interventions** which offer advice to parents about how to talk with their children about alcohol, together with supporting material to encourage skills development and acceptance of non-drinking social activities in their tertiary-bound children. Although the attitudes and behaviours of peers have been shown to strongly correlate with student drinking attitudes and behaviours, developmental literature has highlighted the ongoing importance of the family as an influencer of young people (even once at university)[35] offering promise for initiatives of this type.

One randomised controlled trial found that a parent-based intervention was effective in reducing the risk of first-year students beginning to drink and was also associated with reduced 'growth' in drinking over the first year for women. This finding suggested that the intervention was effective beyond the first semester.[36] A parental intervention has also been trialled in a multisite randomised trial (targeting former high school athletes – a recognised at-risk group). Using a parenting intervention (a 35-page handbook) alongside the Brief Alcohol Screening and Intervention for College Students (BASICS),[37] the intervention resulted in significantly lower alcohol consumption, less high-risk drinking and fewer consequences for those in the intervention group when compared with controls at 10-month follow up. The combined intervention was also found to be more effective than the BASICS programme alone in reducing consequences (p<.05, d=0.20) suggesting that the parenting intervention offers promise, in association with the BASICS programme.

In contrast to previous studies, those randomised to the parenting intervention alone did not differ significantly from controls in terms of their drinking or related consequences. The authors propose that this finding may have related to the nature of the high-risk group participating in the study. High school athletes have been shown to begin drinking earlier than other students suggesting that a parental intervention of this type may need to be delivered earlier to this group of young people.[38]

The value of developing a **comprehensive alcohol policy** with key stakeholders is generally recognised with any such policy needing to be easily accessible and communicated widely within and beyond the tertiary setting. It is also helpful if planned interventions, for reducing harmful alcohol use, are included in the alcohol policy document.[39] Not surprisingly, considerable variety is evident in the strength and scope of tertiary alcohol policies – each, however, offers a starting point for those settings wishing to advocate for harm minimisation and an environment more supportive of the institution's desired learning and social outcomes.

Alcohol policies offer an opportunity for tertiary settings to not only profile their position on alcohol but also to advocate for change in terms of student/campus culture and the wider community.[39]

Toomey et al, have identified a number of policy options to decrease alcohol use and associated problems in tertiary students including but not limited to: restricting advertising, avoiding sponsorship, restricting when and where alcohol can be sold (and consumed), promoting

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[35] Turrisi, R., Abar, C., Mallet, K., Jaccard, J. (2010). An examination of the mediational effects of cognitive and attitudinal factors of a parent intervention to reduce college drinking. *Journal of Applied Social Psychology, 40*(10), 2500-2526.

[36] Ichiyama, M.A. et al., (2009). A Randomized Trial of a Parent-Based Intervention on Drinking Behavior Among Incoming College Freshmen. *J. Stud. Alcohol Drugs,* Supplement No 16: 67-76.

[37] BASICS is a specific protocol for a brief motivational intervention which has been found to be effective for students who are at-risk for alcohol-related problems or who drink heavily.

[38] Turrisi, R., et al., (2009). A Randomized Clinical Trial Evaluating a Combined Alcohol Intervention for High-Risk College Students. *J. Stud. Alcohol Drugs, 70*: 555-567.

[39] Nova Scotia Department of Health and Wellness. (2012). *Reducing alcohol harms among university students: A summary of best practices.* Halifax: Nova Sotia Department of Health and Wellness, Mental Health, Children's Services & Addictions Branch.

responsible alcohol service, restricting happy hours/price promotions, the availability of non-alcoholic options, and the promotion of alcohol-free events.[16]

Initiatives targeted to individual students – examples of individual-level strategies

Interventions targeted to individuals focus on reducing the demand for alcohol by the individuals. This is typically done through providing information and supporting skill development to influence decision-making and behaviour.[40] Evidence suggests that some interventions are effective with higher-risk groups including first year students. Studies are continuing to explore the relative benefits of interventions provided in person or via a web-based platform.

For students to benefit from initiatives targeted to individuals their high-risk drinking needs to be identified in the first instance. Students may not seek help to change their drinking patterns but may present to health services with other issues.

The United States Preventive Services Task Force[41] (USPSTF) recommends that primary care clinicians conduct alcohol screening in adults aged 18 and over and provide brief interventions for unhealthy drinking behaviors. The USPSTF has concluded that brief behavioural counselling interventions reduce heavy drinking episodes and increase adherence to recommended drinking limits.[12] In New Zealand funding from the Ministry of Health has been allocated to support brief interventions in general practice and other settings. This would imply that ideally all students presenting to a health service, including a campus health service would be **screened for alcohol misuse** using the AUDIT C tool.[42] Brief feedback would be offered on the findings and further screening (with the 10Q AUDIT) undertaken as indicated, and a referral made to appropriate services depending on the outcome of the 10Q AUDIT.[43]

A randomised trial investigated the effectiveness of a **brief intervention**[44] offered in a primary care setting (student health centre) to students who were found to be high-risk drinkers on screening. Students presenting (n= 8,753) as new patients to a health service at a large university were screened for high-risk drinking and 2,484 students were identified (28%). Of this group 363 agreed to participate in the trial and were randomly assigned to either the experimental or control group. Those in the experimental group undertook two brief intervention sessions (based on motivational interviewing techniques, delivered by trained providers at the health centre).

Statistically significant reductions over time were noted for the intervention group (compared with the control group) for drinking behaviour outcomes. For example, typical Blood Alcohol Concentration (BAC) (trend p=.018)[45], peak BAC (trend p=.006), maximum number of drinks in a sitting (trend p=.046), average number of drinks per week (trend p=.032), and the number of times drunk in a typical week (trend p<.001).

Alcohol-related harms were also reduced for the intervention group when compared with the control group at 6 months (p=.028) and 9 months (p=0.041). In addition, the overall trend from baseline was also significant (trend p=.030) suggesting that brief interventions delivered to high-risk

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[40] Larimer, M., & Cronce, J. (2007). Identification, prevention, and treatment revisited: Individual-focused college drinking prevention strategies 1999–2006. *Addictive Behaviours, 32*:2439-2468

[41] Created in 1984, the U.S. Preventive Services Task Force is an independent, volunteer panel of national experts in prevention and evidence-based medicine.

[42] The AUDIT C tool is a modified, three-question version of the Alcohol use disorders Identification test. The tool helps health professionals identify those who are hazardous drinkers or have an alcohol dependency or abuse problem during the initial consultation.

[43] https://www.rnzcgp.org.nz/assets/documents/News--Events/CGP4044-Clinical-Effectiveness-Modules-Template-v2-LR.pdf

[44] **Brief intervention** is a technique used to initiate change for an unhealthy or risky behaviour such as smoking, lack of exercise or alcohol misuse. As an **alcohol intervention** it is typically targeted to non-dependent drinkers whose drinking may still be harmful.

[45] Trend p value is from repeated measures analysis of covariance model adjusting for baseline measure and correlation of repeated measures over time; trend p value <.05 indicates a significant difference between treatment groups over time.

student drinkers, in a student healthcare setting, may result in decreased alcohol consumption, and a reduction in high-risk drinking and alcohol-related harms.

A recent meta-analysis of alcohol interventions, **targeted specifically at first-year students**, found that **behavioural interventions** were successful at reducing alcohol consumption and alcohol-related problems for up to four years following the intervention.[46] Most of the interventions included in the analysis were delivered to individuals (61%) but some were delivered to groups (31%) and the remaining interventions (8%) involved both individual and group sessions. The interventions included the provision of the following: alcohol education (77%), normative comparisons (84%), personalised-feedback (73%), suggested strategies to modify alcohol consumption (63%), and 'challenges to expectancies' and/or motivations for drinking (74%).

An unexpected finding was that individually delivered interventions were no more effective than group-based interventions except with regard to the frequency of heavy drinking. Interventions delivered to individuals (as opposed to groups) were found to be more effective in reducing the frequency of heavy drinking compared with control groups. The authors propose that group-based interventions may be a cost-effective measure for campuses but that those who drink more heavily are more likely to require an individually tailored intervention.

The effect sizes varied suggesting variability in the effectiveness of some interventions. The characteristics of the sample (in terms of sex and ethnicity) did not impact on the findings except that interventions were less effective at reducing the frequency of heavy drinking when the sample included more Black Americans. The reasons for this are not clear although it is possible that the interventions were less culturally appropriate for Black students. In addition this may reflect a methodological limitation – for example college surveys indicate that Black Americans are the least likely college group to drink heavily so they may have less room for improvement. It is also noted that research examining the effectiveness of alcohol interventions in the Black American population generally is limited.[46]

This study highlights the importance of investigating the impact of different intervention components on Māori and Pacific students in New Zealand tertiary settings: assumptions cannot be made about the appropriateness of interventions for different ethnic groups.

Note: Kypri et al.,[8] reported in their findings of large randomised controlled trial that a web-based screening and brief intervention reduced hazardous and harmful drinking among non-help-seeking Māori university students (e.g. drank less often RR= 0.89; 95% CI: 0.82-0.97).

Interventions that included four to six components were more successful and in addition participants were more likely to have reduced their alcohol intake, their frequency of heavy drinking and have fewer problems when there were more components to the intervention. The most effective components were identified as:

- the provision of personalised feedback
- strategies to moderate drinking behaviour

Other effective components identified were:

- challenges to alcohol expectancies
- goal-setting, and the
- identification of high-risk situations.

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[46] Scott-Sheldon, L.A.J., Carey, K.B., Eliot, J.C., Carey, L. & Carey, M.P. (2014). Efficacy of Alcohol Interventions for First-Year College Students: A Meta-Analytic Review of Randomized Controlled Trials. *Journal of Consulting and Clinical Psychology, 82*(2), 177-188

Although the overall the effect sizes were small when compared with controls the authors recommend two strategies on the basis of their findings. Firstly, that all incoming students undergo routine screening for risky alcohol use (they suggest this can be brief and completed electronically, possibly as part of a general campus survey) and secondly, that students who report drinking in the screening questions complete a brief, proactive intervention including the components identified as helpful in this meta-analysis.

A qualitative review of preventive interventions for individual students (36 randomised controlled trials evaluating 56 interventions) found that brief motivational interviews combined with **personalised feedback** and **personalised normative feedback**[47], as well as stand-alone personalised feedback or personalised normative feedback interventions are effective in reducing alcohol use and alcohol-related problems.[48] The review also indicated support for the effectiveness of **alcohol expectancy challenge interventions**[49] although this finding was not as consistent as that for personalised feedback and personalised normative feedback. Analysis[50] of these multiple studies indicated mixed support for interventions that focused on providing feedback about blood alcohol concentration only. Mixed support was also found for education-focused interventions that included some elements of personalised feedback and/or personalised normative feedback and the review found no evidence for the effectiveness of alcohol education programmes alone. [48]

A systematic review carried out by Ickes, Haider and Sharma[51] also found that programmes that included a brief, personalised consultation, with a trained facilitator, showed the greatest improvements in targeted individual behaviours (e.g. decreased drinking and reduced alcohol problems or consequences). Although the authors noted some limitations with the intervention designs for some studies reviewed, they reported that the overall success of alcohol prevention programming warrants its use with students in college settings.

Scott-Sheldon et al., note that universal screening and 'proactive intervention delivery'[46] (p. 186) will not prevent all alcohol-related harm on campuses, but that 'prevention-oriented approaches' are low cost, highly efficient, and minimally burdensome on students and campuses.

'This meta-analytic research supports their efficacy, and even though the effect sizes are relatively small, the 'prevention paradox' reminds us that achieving small reductions in alcohol misuse among a large group of drinkers can result in greater campus gains relative to more expensive efforts to reduce problems among a much smaller number of dependent drinkers.'[46] (p. 186)

Screening students for at-risk or harmful drinking is certainly an important component in the provision of comprehensive health services and an essential early step in establishing the need for in-depth interventions targeting individual students. Student health services may initiate an intervention which in turn may lead to a referral to specialist healthcare services as required.

Tertiary settings, and their associated student healthcare services, wishing to implement individually-focused interventions as part of a plan to reduce alcohol-related harms will require

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[47] **Personalised normative feedback** – this approach relies largely on raising awareness amongst students about how much their peers actually drink (and do not drink) and to correct existing misperceptions.

[48] Cronce, J.M. & Larimer, M.E. (2011) Individual-Focused Approaches to the Prevention of College Student Drinking. *Alcohol Res Health, 34*(2) 210-221.

[49] **Alcohol expectancy challenges** – these treatments are aimed at reducing the 'positive expectancies' that students may have in relation to consuming alcohol. Those who expect positive outcomes from their drinking (i.e. cognitive, affective and behavioural outcomes) are more likely to consume more alcohol and to drink more often, and show more signs of problem drinking.

[50] Although this was a qualitative review, intervention effect sizes are reported (where provided), and between-group estimates where enough post-intervention data was provided to calculate these. Some within-group effect size estimates are also provided where a significant reduction in alcohol use or consequences were noted. Details available here: http://pubs.niaaa.nih.gov/publications/arh342/210-221.htm

[51] Ickes, M.J., Haider, T. & Sharma, M. (2015). Alcohol abuse prevention programs in college students. *Journal of Substance Abuse 20*(3), 208-227

expert support in identifying and selecting programmes, and their component features. Establishing on-going evaluation of outcomes will also be important.

The implementation of alcohol screening and the delivery of brief interventions present an opportunity for staff to engage individual students in discussions about alcohol. Although tertiary settings are encouraged to invest in making these tools available, 'their implementation and delivery should not dominate time and resources at the expense of environmental and system approaches' (p. 31).[39]

As highlighted by Sellman et al.,[52] whilst key environmental strategies to changing the alcohol environment, such as effective regulation of marketing, pricing, trading hours and adult drink-driving limits are not legislated for by government, it is unlikely that implementing brief interventions in primary care will have the desired effect of changing New Zealand's 'heavy drinking culture' (p. 8).

Individual interventions are unlikely to have sustained effects if students return to the same environment.

Creating academic success and wellbeing in tertiary settings

Putting it all together

This review has highlighted the features of effective health promoting approaches and presented the evidence for a range of environmental-level strategies (i.e. initiatives focused on the collective student body, tertiary campuses and the communities surrounding them) and individual-level strategies (i.e. those strategies focused on individual students).

The evidence reviewed suggests that a health promoting programme seeking to address alcohol-related harm in a tertiary setting will ideally:

- employ a whole of setting approach i.e. comprehensive, integrated campus-wide approaches
- include multiple interventions implemented in a systematic way
- focus on environmental or systems strategies, but also support individual students
- use participatory approaches i.e. ensure students have a voice
- build on the strengths of the setting and the wider community
- use a collaborative, quality improvement approach
- work in partnership with a range of stakeholders (within and beyond the campus)
- value the input of local and indigenous communities
- consider equity and diversity, and
- promote research, innovation and evidence-based action.

Environmental-level interventions that are more likely to be effective are those that focus on strategic-level change (i.e. the implementation of comprehensive policies to change the alcohol environment both on and off campus) and involve the delivery of integrated programmes with multiple complementary components. Key findings include:

- Alcohol taxation, restrictions on the availability of alcohol, measures to reduce drink driving and bans on alcohol advertising have been found to be the most effective interventions to reduce alcohol-related harm at a population-level.

[52] Sellman, J.D., Connor, J.L. & Robinson, G.M. (2012). Will brief interventions in primary care change the heavy drinking culture in New Zealand? *The New Zealand Medical Journal, 125*(1354)

- A number of policy options have been found to be effective in decreasing alcohol use and associated problems among tertiary students e.g. restricting advertising, avoiding sponsorship, restricting when and where alcohol can be sold (and consumed), promoting responsible alcohol service, ensuring the availability of non-alcoholic options and promoting alcohol-free events.
- The attitudes, and culture of alcohol use in communities surrounding tertiary institutions can impact significantly on students e.g. the prevalence of heavy drinking among students may be associated with the density of alcohol outlets and the laws (and their enforcement) surrounding tertiary settings.
- Students in settings with more alcohol control policies appear less likely to engage in binge drinking.
- Community members are also likely to benefit from working with tertiary settings e.g. fewer noise issues, property damage and assaults reported.
- Parent-based interventions appear to offer promise in reducing the risk of first-year students beginning to drink, and to result in lower alcohol consumption, less high-risk drinking and fewer negative consequences.

In terms of providing individually-focused strategies, the evidence supports the screening and implementation of opportunistic brief interventions, in student health services, as a robust first step in assessing and addressing the needs of individual students. Education and awareness programmes, and behavioural skills-based approaches, although targeting individuals, align well with environmental-level strategies. Ensuring consistency of messaging across campus and nesting individually-focused strategies within a wider environmentally-focused strategy will offer the best outcomes for individual students.

In addition to the research presented in this paper, which indicates strong support for comprehensive programmes implementing policy together with multiple other programme components, the National Institute on Alcohol Abuse and Alcoholism in the United States has just released College AIM[53] – an Alcohol Intervention Matrix – which brings together the findings of a multi-year national collaboration assessing the effectiveness of stand-alone interventions for addressing alcohol-related harm in tertiary settings.

In focusing on single, stand-alone strategies College AIM has not evaluated multi-component programmes, although it is important to note that readers are advised that 'A mix of strategies is best.' (p. 5) and that, 'Your greatest chance for a safer campus will likely come from a combination of individual- and environmental-level interventions that work together to maximize positive effects.' (p.5)[53]

The following tables provide a summary of the recently published (October 2015) Alcohol Intervention Matrix (environmental- and individual-level focused strategies). The Matrix aligns well with the key findings of this review except where some strategies, shown to contribute to the effectiveness of multi-component interventions, are assessed by College AIM as having a lower level of effectiveness, than might be expected given the findings of multi-component studies, when judged as stand-alone interventions e.g. party patrols, substance-free residential halls.

[53] Newly released (October 2015) the College AIM (Alcohol Intervention Matrix) offers a matrix of individual- and environmental-level strategies. See: http://www.collegedrinkingprevention.gov/CollegeAIM/Introduction/default.aspx

Table 2: A summary of key environmental-level strategies (assessed as stand-alone components) – effectiveness based on current understandings in both general and tertiary populations. Selected extracts from College AIM.

Highly effective (as stand-alone components)
Enforce drinking age
Restrict happy hours/price promotions - campus or locally agreed policy prevents any types of drink specials that might encourage students to drink more than they would normally
Increase alcohol tax - government increases tax on the sale of alcohol – raises cost of consumption and makes excessive drinking less affordable (advocacy required at a national level)
Moderately effective (as stand-alone components)
Limit number/density of alcohol establishments - licensing/zoning laws etc. are used to reduce the number of licensed premises that may be in the community or area around a campus
Enact social host provision laws – ensure hosts are aware of responsibilities in line with legislation
Use responsible beverage service training laws - enacted at a local/national level this ensures that servers receive formal training on recognising intoxication, checking ID, intervention techniques etc.
Retain or enact restrictions on hours of alcohol sales - campus and/or local authorities retain or enact policies that limit the hours during which alcohol may be sold legally
Prohibit alcohol use/sales at campus sporting events - campus bans the sale and consumption of alcohol at sporting events
Lower effectiveness (as stand-alone components)
Establish an alcohol-free campus
Conduct campus-wide social norms campaign
Restrict alcohol sponsorship and advertising
Implement beverage service training programmes
Effectiveness not yet rated, or findings are mixed (as stand-alone components)
Alcohol-free programming – a campus hosts alcohol-free events
Prohibit alcohol use/service at campus social events
Implement bystander interventions
Require student attendance at Friday morning classes
Establish standards for alcohol service at campus social events – e.g. limiting the number of alcoholic beverages per person, require beverage service training
Require residential halls to be substance-free
Implement party patrols – teams visit locations where reports of noisy parties or other complaints have been made

Some strategies included in the Alcohol Intervention Matrix are highly specific to the United States' environment (and as a result they are not profiled here) and others presented here are addressed at least to some extent by New Zealand's current legislation. Readers are directed to the College AIM website for further information about the profiled initiatives including general estimates of the resourcing required for different strategies, and a brief overview of evidence (including information

about the numbers and types of studies used in the assessment process) for each stand-alone component.

Table 3: A summary of key individual-level strategies (assessed as stand-alone components) – effectiveness based on current understandings in both general and tertiary populations. Selected extracts from College AIM

Highly effective (as stand-alone components)
Normative re-education – personalised normative feedback provides students with personalised information about their alcohol use compared with that of other students
Skills training, goal setting – students identified with an alcohol use problem set goals to limit their alcohol consumption (may include other life skills)
Brief motivational interventions, individual – emphasises self-efficacy and personal responsibility
Personalised feedback intervention – often web-based, these assessments generate personalised feedback
Moderately effective (as stand-alone components)
Brief motivational interventions, group – emphasises self-efficacy and personal responsibility
Skills training, parent-based interventions which encourage parents to talk with their children about alcohol use
Skills training, expectancy challenge interventions – a process whereby positive expectancies about alcohol use are challenged
Lower effectiveness (as stand-alone components)
Normative re-education, electronic or mailed – specific warnings about excessive celebratory drinking (e.g. 21st birthdays)
Effectiveness not yet rated, or mixed findings (as stand-alone components)
Skills training, alcohol focus – students are provided feedback on their actual Blood Alcohol Concentration
Not effective (as stand-alone components)
Information/education
Values clarification – students are asked to consider their personal values and goals and are encouraged to incorporate responsible decision-making about alcohol use into their values/goals

Conclusions and recommendations

Alcohol-related harm impacts significantly on individual student drinkers and those around them - other students, friends and family members, and those in the wider community can suffer serious consequences due to the 'second-hand effects' of alcohol. In addition, the available research indicates that the burden of alcohol-related harms may be disproportionately greater for Māori students[8] (as it is for Māori at a population level[54]). This suggests the importance of considering and addressing the needs of this student group explicitly. Ongoing research should provide clarity about other at-risk student groups within New Zealand tertiary settings.

[54] Connor, J., Kidd, R., Shield, K. & Rehm, J. (2015). The burden of disease and injury attributable to alcohol in New Zealanders under 80 years of aged: marked disparities by ethnicity and sex. *The New Zealand Medical Journal, 128*(1409)

'Changing the way we drink is particularly challenging given the current environment which is characterised by widespread availability and promotion of extremely cheap alcohol. Changing New Zealand's drinking culture will require changes to the regulatory environment. When formulating policies to mitigate alcohol-related harms, it is important to keep in mind that alcohol is not an ordinary commodity; it is a toxin, an intoxicant and addictive psychotropic drug…' (p.34).[55]

Tertiary settings can play a leading role in reducing alcohol-related harm as they work with today's students - tomorrow's leaders - leading by example and advocating for change that will benefit tertiary settings and the wider community alike.

Advocating for national alcohol reform, informed by best-evidence, offers an opportunity for those in tertiary settings to influence the broader environment in a significant way – the environment in which tertiary settings and their students must operate. Evidence-based strategies introduced at a national level will not only support a change in the broader 'alcohol culture' but will also complement initiatives implemented in tertiary settings.

The findings of this review strongly support the implementation, within tertiary settings, of comprehensive environmental-level interventions that use a variety of strategies to address and minimise alcohol-related harm among tertiary students.

Using best-evidence health promoting approaches, tertiary settings will be able to embark on more effective collaborations (both within and beyond the setting itself) to address the challenges associated with alcohol-related harm, and using a whole of setting approach to create environments that 'make the healthy choice the easy choice'.

Tertiary settings are encouraged to consider the following recommendations to reduce alcohol-related harm:

- Use a whole of setting approach informed by best-evidence health promoting principles
- Develop a comprehensive strategic action plan, involving key stakeholders
- Identify environmental-level strategies and select multiple best-evidenced interventions
- Formally evaluate interventions and report the findings

As previously noted, the problem of alcohol-related harm in tertiary settings is a complex one. Addressing this complexity informed by best-evidence allows those implementing alcohol-harm minimisation strategies to lead change – change in the 'culture of alcohol' and in the wider environment – which will support students to achieve both academic success and wellbeing.

'Universities are often afraid to reveal that they have a problem with alcohol, although everyone knows it anyway. But we've seen important benefits from focusing on the problem and taking a tough stand. Applications are up, student quality is up, more students are participating in activities like drama and music and alumni giving has increased. I know that support for the University has grown with our reputation for taking strong ethical positions and sticking with them.'[26](p. 10)

Robert L Carothers, President, University of Rhode Island

[55] New Zealand Medical Association. (2015). *Reducing alcohol-related harm: New Zealand Medical Association, Policy Briefing.* New Zealand Medical Association. Available at: https://www.nzma.org.nz/__data/assets/pdf_file/0017/42542/Alcohol-Briefing18.may.FINAL.pdf