Policy interventions implemented through sporting organisations for promoting healthy behaviour change (Review)

Priest N, Armstrong R, Doyle J, Waters E

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[Intervention Review]

Policy interventions implemented through sporting organisations for promoting healthy behaviour change

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ABSTRACT

Background

Sporting organisations provide an important setting for health promotion strategies that involve policies, communication of healthy messages and creation of health promoting environments. The introduction of policy interventions within sporting organisations is one strategy to target high risk behaviours such as smoking, alcohol consumption, excess sun exposure, unhealthy eating and discrimination.

Objectives

To update a review of all controlled studies evaluating policy interventions organised through sporting settings to increase healthy behaviour (related to smoking, alcohol, healthy eating, sun protection, discrimination, safety and access).

Search methods

We updated the original (2004) searches in May 2007. We searched: the Cochrane Central Register of Controlled Trials (CENTRAL, *The Cochrane Library,* Issue 2 2007); MEDLINE and MEDLINE In-Process and Other Non-Indexed Citations (2004 to Week 3 April 2007); EMBASE (2004 to Week 17 2007); PsyclNFO (2004 to April Week 1 2007); CINAHL (2004 to Week 1 May 2007); SPORTDiscus (2004 to April 2007); Sociological Abstracts (2004 to 2007); Dissertation Abstracts (2004 to May 2007), ERIC (2000 to 2007), freely available online health promotion and sports-related databases hosted by leading agencies, and the internet using sport and policy-related key words.

Selection criteria

Controlled studies evaluating any policy intervention implemented through sporting organisations to instigate and/or sustain healthy behaviour change, intention to change behaviour, or changes in attitudes, knowledge or awareness of healthy behaviour, in people of all ages. Policies must address any of the following: smoking, alcohol, healthy eating, sun protection, access for disadvantaged groups, physical safety (not including injuries), and social and emotional health (e.g. anti-vilification, anti-discrimination).

Uncontrolled studies which met the other inclusion criteria were to be reported in an annex to the review.

Data collection and analysis

We assessed whether identified citations met the inclusion criteria. Abstracts were inspected independently by two review authors and full papers were obtained where necessary. As we located no controlled evaluation studies, we did not undertake data collection or analysis. We found no uncontrolled studies meeting other inclusion criteria, and therefore present no annex to the review.

Main results

We found no rigorous studies evaluating the effectiveness of policy interventions organised through sporting organisations to increase healthy behaviours, attitudes, knowledge or the inclusion of health-oriented policies within the organisations.

Authors' conclusions

We found no controlled studies to guide the use of policy interventions used in sporting settings. The original (2004) searches identified a number of case studies with anecdotal reporting of outcomes. We strongly recommend that rigorous evaluation techniques are employed more commonly in this field to illuminate the impact of health promoting policy on outcomes, and the contexts and processes which are likely to be effective in reducing harmful behaviours.

PLAIN LANGUAGE SUMMARY

Policy interventions implemented through sporting organisations to promote healthy behaviour change

Sporting organisations provide an important setting for health promoting policies to create health promoting environments and to support health-oriented behaviour change. The introduction of policy interventions within sporting organisations is one strategy to target high risk behaviours such as smoking, alcohol consumption, excess sun exposure, unhealthy eating and discrimination, as those who access sport settings have been shown to have elevated risk behaviours. We found no controlled studies evaluating the effectiveness of policy interventions implemented in sporting settings to promote healthy behaviour. The study designs employed in evaluations of these policies typically have been case studies, thereby limiting our understanding of the effectiveness of such health promoting strategies.

BACKGROUND

The role of the policy environment in influencing health behaviour and population health outcomes is a core principle of public health and health promotion. As a result, the importance of including policy level strategies within public health and health promotion practice is well recognised. The Ottawa Charter for Health Promotion advocates a comprehensive approach to health promotion and public health practice and emphasises the role of healthy public policy, as well as the social and physical aspects of the health environment, and community education in health advocacy and action (O'Connor 1995). In recognition of the strong influence of environments on health and health behaviour many health promotion initiatives utilise a settings approach, working within the settings in which people live, work or play to bring about healthy behaviour change (Kelleher 1998). The World Health organisation (WHO) has identified the use of settings as an important means of promoting health because of the practical opportunities they offer for the implementation of comprehensive multi-level strategies (WHO 1997).

Sporting organisations have increasingly been recognised as settings with high potential to create health promoting environments (Corti 1996; Crisp 2003; Kokko 2006). Interventions targeting a diverse range of health issues and utilising a range of strategies have been implemented throughout the world within sporting organisations. Many of these have focused on behaviour change and have targeted issues such as increasing physical activity and healthy eating and reducing excess sun exposure, smoking, alcohol consumption and discrimination (Giles-Corti 2001).

Given the importance within health promotion theory and practice of accompanying behavioural change approaches with environmental and policy changes, policy level interventions are the focus of this review.

The potential for policy level interventions to promote and achieve healthy behaviour change within sporting organisations is high. It is argued that many issues of importance to public health can be aligned to sport sector interests, and physical venues can be health promoting through structural and environmental policies (Corti 1996). The latter may be achieved through health promotion sponsorship that provides reinforcing incentives for healthy behaviour within a sponsored group, encouraging or even mandating policy changes within the sponsored organisations. These efforts are designed to achieve changes within both the sponsoring organisations and their members, but can also act to influence the broader public (Dobbinson 2002).

Evaluation of policy-level interventions is difficult; it requires an assessment of whether the intervention strategy led to policy change, the policy change produced the desired behaviour or environmental change, and the resulting behaviour or environment then contributed to the health outcome (Clark 1998). Making clear connections may be impossible, and the challenge may be to identify indicators that most would accept as reliable and valid signs that change is occurring in the desired direction (Clark 1998).

In this review, policies are defined as laws, regulations, formal or informal rules and understandings that are adopted on a collective basis to guide individual and collective behaviour. This includes legislation and organisational policy. Legislation includes formal, documented policies that influence laws enacted by relevant governing bodies. Organisational policies are policies implemented within specific organisations that define and establish appropriate behaviour within the realms of the organisation (Salmon 2000). We will consider policies that alter either the physical environment (e.g. erection of a sun-shade cloth), and/ or the socio-cultural environment (e.g. anti-vilification/anti-discrimination policies).

A sporting organisation has been defined as any organisation that controls sports or sporting events; organises or administers sports or sporting events; accredits people to take part in sporting competition; provides teams to compete in sporting competition; or trains, or provides finance for people to take part in sporting competition, and encompasses professional and amateur sporting bodies (modified from ASCAB 1999).

This is an update of the original version of this review (Jackson 2005). We also refer interested readers to a related Cochrane systematic review of interventions implemented through sporting organisations for increasing participation in sport (Priest 2008).

OBJECTIVES

Primary objectives

- To determine if policy interventions implemented through sporting organisations instigate and sustain healthy behaviour change within the sport setting.
- To determine if policy interventions implemented through sporting organisations instigate and sustain changes in attitudes, knowledge or awareness of healthy behaviour or intention to change behaviour within the sport setting.

Secondary objectives

- To determine if policy interventions implemented through sporting organisations instigate and sustain healthy behaviour change outside the sport setting.
- To determine if policy interventions implemented through sporting organisations instigate and sustain changes in attitudes, knowledge or awareness of healthy behaviour or intention to change behaviour outside the sport setting.
- To determine if some interventions are more successful with particular participants, grouped by, for example, socio-economic status, gender, age, ethnicity or geographical location.
- To determine if policy changes influence factors such as participation in sport.
- To determine if the success of interventions is dependant on particular process indicators (that is, those that describe why and how a particular intervention has worked).
- To determine if the success of interventions is dependant on particular contextual factors (e.g. concurrent media campaigns at the time of implementation).
- To determine if short term behaviour changes are maintained at 12 months and beyond.
- To determine if short term changes in attitudes, knowledge or awareness of healthy behaviour or intention to change behaviour are maintained at 12 months and beyond.
- To determine if multiple intervention strategies are more effective than single interventions in promoting and sustaining healthy behaviour change.

METHODS

Criteria for considering studies for this review

Types of studies

- Randomised controlled trials (RCTs)/cluster RCTs
- 'Quasi-randomised' trials
- Controlled before and after studies

The search strategy aimed to identify controlled studies and uncontrolled study designs with pre- and post-intervention data (as it was likely that a great deal of the literature was not in the form of controlled evaluations). Uncontrolled studies which met the other inclusion criteria were to be described and presented in an annex to the review.

Types of participants

People of all ages.

Types of interventions

Any policy intervention implemented through sporting organisations to instigate and/ or sustain healthy behaviour change, intention to change behaviour, or changes in attitudes, knowledge or awareness of healthy behaviour

Policy interventions included in the scope of this review are as follows:

- Policies surrounding smoking (e.g. indoor and/ or outdoor, partial or total smoking bans);
- Policies surrounding the responsible use of alcohol (e.g. drink driving awareness programs, alcohol server training and availability of low or non-alcoholic beverages);
- Policies surrounding sun protection (e.g. shaded outdoor areas or avoidance of outdoor activity around noon or policies on use of hats and sunscreen);
- Policies surrounding healthy eating (e.g. provision of healthy eating choices in the clubrooms such as low fat, low sugar and low salt choices, fresh fruit and vegetables);
- Policies to promote inclusion and social and emotional health (e.g. anti-harassment, anti-discrimination, anti-vilification and anti-gambling policies);
- Policies to promote access for disadvantaged groups (e.g. very low income, English as a second language);
- Policies surrounding disability access (e.g. provision of marked parking, ramps, special seating, toilets and other facilities); or
- Policies to improve safety (not including injury prevention) (e.g. well lit facilities, safe transport to and from facilities).

Exclusion criteria

- Policies and practices surrounding sports injury prevention (such as padding for goal posts); and
- Policies relating to the reduction of sports performance enhancement drugs and recreational drug use.

Types of outcome measures

- Behaviour change;
- Intention to change behaviour;
- Change in attitudes, knowledge or awareness of healthy behaviour; and
- Changes in policies or policy presence.

Search methods for identification of studies

In Appendix 1 we present details of the searches we conducted in 2004 for the original iteration of this review (Jackson 2005).

May 2007 updated searches

We updated the searches in May 2007. We used the following strategy in order to identify both published and unpublished studies that were either controlled or reported both pre-intervention and post-intervention data. There were no language or date restrictions for the electronic database searches.

Electronic database searching

We searched the following databases:

- The Cochrane Central Register of Controlled Trials (CENTRAL, *The Cochrane Library*, Issue 2 2007)
- MEDLINE and MEDLINE In-Process and Other Non-Indexed Citations (2004 to Week 3 April 2007)
- EMBASE (2004 to Week 17 2007)
- PsycINFO (2004 to April Week 1 2007)
- CINAHL (2004 to Week 1 May 2007)
- SPORTDiscus (2004 to April 2007)
- Sociological Abstracts (2004 to 2007)
- Dissertation Abstracts (2004 to May 2007)
- ERIC (2000 to 2007)

We used the search strategy presented at Appendix 2 to identify relevant studies in MEDLINE (Ovid) and then modified it as necessary to search the other listed databases. (Note: for many of the databases the study design filter (lines 38-60 of the MEDLINE search) were not used, in order to increase the sensitivity of the search).

Freely available internet databases

We also searched the following internet databases (in English only) in May 2007:

- BiblioMap, the Evidence for Policy and Practice Information and Co-ordinating Centre (EPPI Centre) database of health promotion research, http://eppi.ioe.ac.uk;
- The Health Evidence Bulletins, Wales, http://hebw.uwcm.ac.uk;
- The Effective Public Health Practice Project, http://www.city.hamilton.on.ca/sphs/EPHPP/ephppSumRev.htm;
- National Institute for Health and Clinical Excellence http://www.nice.org.uk
- The Community Guide - Guide to Community Preventive Services - Systematic reviews and evidence-based recommendations, http://www.thecommunityguide.org;
- C2-SPECTR, the social, psychological, educational, and criminological trials register of the Campbell Collaboration, http://www.campbellcollaboration.org;
- Leisure Information Network website (http://www.lin.ca) using the National Recreation Database (Canada);
- National Sport Information Centre - SportScan, http://www.ausport.gov.au/nsic/sportscan;

- National Sport Information Centre - NSIC full text archive, http://www.ausport.gov.au/fulltext/default.asp;
- SportLit, South African Sports Commission database, http://www.sasc.org.za/Library.asp.

We also conducted an internet search using the Google search engine (www.google.com). We used the following keywords to locate studies: sport, policy, organisation, sport association, club-based, sport club policy, sport program. We also used links from relevant websites to locate national sporting bodies with likely knowledge in this area to identify unpublished reports, internal reports and conference proceedings. Where sporting body publications were not available online, we contacted the sporting body by email.

Data collection and analysis

Selection of studies

The original (2004) searches produced a total of 11,519 citations.The updated (2007) searches produced a total of 1591 citations. Two review authors (NP, RA) independently assessed all the titles and abstracts identified as a result of the comprehensive updated search, using Endnote (version 9) software. We assessed full reports of all possibly eligible trials against the selection criteria. Review authors were not blind to the names of authors, institutions and journals.

Assessment of methodological quality

It was planned that the two review authors would independently assess each study using the Quality Tool for Quantitative Studies, developed by the Effective Public Health Practice Project, Canada (http://www.city.hamilton.on.ca/phcs/EPHPP). Construct validity for this tool has been established (Thomas 2001). The criteria in the tool are 1) selection bias; 2) study design (allocation bias); 3) control of confounders; 4) blinding (whether intervention providers and assessors were aware of the research question); 5) data collection methods; 6) follow-up participation rates; 7) statistical analysis; and 8) integrity of intervention (how well the intervention was carried out). Criterions 1 to 6 are rated as strong, moderate, or weak; criterions 7 and 8 are used to inform the judgement of methodological quality.

Data extraction

Planned data extraction included: study population (e.g. number and description of participants), study methods (e.g. instruments used and assessment intervals), the type of intervention (including length, duration of follow-up, success/failure of implementation), the outcomes evaluated, the results, conclusions and limitations. Contextual data was also to be extracted, if reported in the primary studies.

Data synthesis

Given the likely heterogeneity with respect to the interventions, we planned to employ narrative synthesis of results.

Consumer participation

For systematic reviews to be relevant to policy and practice, potential users of the review must be involved in key stages of the review process (Oliver 1997). This involvement can ensure that the review will address the key questions that policy-makers and practitioners consider important, consider all relevant outcomes, and present its findings and recommendations in an accessible way (Oliver 2004).

This review was originally conceived by the Sport and Active Recreation Team of the Victorian Health Promotion Foundation (VicHealth), an independent health promotion organisation in Victoria, Australia. An advisory panel consisting of members from VicHealth, VicSport, the Evidence for Policy and Practice Information and Co-ordinating (EPPI) Centre and the Victorian Little Athletics Association were consulted during the development of the protocol for the review. We also sought feedback from individuals from South Africa and Germany who we identified as having knowledge in this area.

RESULTS

Description of studies

See: Characteristics of excluded studies.

Included studies

The updated search identified no controlled studies that met the inclusion criteria. No uncontrolled studies, with pre- and post-test data, were identified in order to be included in an annex to this review.

Excluded studies

The original search (2004) identified two randomised controlled trials from the United States, which included policy as one component of a multi-level intervention to change behaviour in the sporting settings. Results could not be separated to investigate the effect of policy alone. One controlled study of a health promotion sponsorship program in Australia compared only post-intervention data on the intervention and control groups, and did not separate results for the policy component of the intervention. Details of these studies are outlined in the table Characteristics of excluded studies. All three studies implemented multi-component interventions to improve sun protection habits.

Risk of bias in included studies

We identified no controlled studies that met the inclusion criteria for the review. Therefore, we assessed no studies for methodological quality.

Effects of interventions

We identified no controlled studies that met the inclusion criteria for the review. Therefore, we carried out no analysis.

DISCUSSION

Through a systematic search of the literature we were unable to identify any studies which employed a controlled design to test the effects of policy interventions implemented in sporting settings to promote healthy behaviour change. We strongly recommend that rigorous evaluation techniques are employed more commonly, and include, particularly, process as well as outcome evaluation.

The original search (2004) did find a relevant survey of structures, policy and practice in sports clubs in Australia (Dobbinson 2002), which provides useful information on the barriers and facilitators associated with the establishment of written health policies in sports clubs. Although the study did not measure the impact of the programs, it provided useful background data from which to monitor effectiveness. Positive factors associated with the establishment of a policy included having a designated person responsible for policy, and the location of the club in the metropolitan area. Barriers included training, advice and resources to develop and monitor the policy. Limited control over facilities, and other club priorities were also mentioned as barriers. In addition to the above factors, Crisp 2003 found barriers relating to contract specification, lack of support and training, other pressing issues of the sports club, perceived costs, and structural impediments. Practitioners should further review the evidence on barriers to policy implementation before designing and implementing their own interventions.

An Australian qualitative study identified by the updated searches in 2007 suggests that policy development for health promotion policies can be achieved in sports clubs when they are well supported by health agencies, when specific behaviours to be encouraged are appropriate for a given sport, and when support and resources for policy development reach the club level (Dobbinson 2006). Similarly another Australian qualitative study reported that implementing policies for a healthy and welcoming environment within sporting clubs was restricted by limited club capacity and limited support from statewide organisations (Eime 2008). It has also been recommended that consideration be given to community data on the interrelation of health behaviours among sports participants, in decisions relating to the matching of health promotion sponsorship programs (which incorporates policy development in sports clubs) and target groups (French 2004). Children are likely to have the greatest lifetime potential to benefit from policy interventions on sun protection behaviour, given that childhood accounts for approximately 80% of total lifetime sun exposure (Preston 1992).

Limitations of the review

The electronic databases we used in the search for studies proved to be limited in their ability to capture the studies of interventions under investigation. This may be due to a number of reasons: the difficulties of developing a sensitive search strategy, the likelihood that the only available evidence to answer this question is located in uncontrolled case studies held by the bodies that typically carry out such interventions, the fact that very few evaluations are carried out on these interventions, or publication bias. The latter includes the non-publication of results with negative findings. Investigators should be encouraged to publish the results of their studies, regardless of whether the outcome is positive or negative (Howes 2004). We conducted an internet search of health promotion and sporting bodies throughout the world, and contacted several such bodies by email. However it was not possible to search systematically via the internet as methods have not been developed, and we could only conduct internet searches in English.

AUTHORS' CONCLUSIONS

Implications for practice

Despite a comprehensive search for literature evaluating the effectiveness of policy interventions implemented through sporting organisations for promoting healthy behaviour change, no evidence in the form of well-designed and evaluated interventions was found. Our ability to provide clear directions or strategies for future health promotion interventions is therefore limited. It is likely that these types of interventions are rarely evaluated or published, or that such evaluations are only available through contacting each sporting club, sporting association, health promotion agency or other agencies with a remit for sport (e.g. local councils). An internet search identified a number of case studies in this area. These included post-data only, and evidence on outcomes was typically anecdotal. It is essential that sporting or health promotion agencies that conduct such interventions evaluate the interventions, publish the results and disseminate them widely. This will enable practitioners to more readily find the available evidence, and consequently, to implement effective interventions.

In future, funding for evaluation should be built into sporting programs. However, as noted in the review by Payne (Payne 2003)

there is a limited capacity to carry out evaluation in sporting organisations. Payne suggests that academic-based researchers should work in partnership with the sport and recreation industry to ensure that sporting programs are evaluated in a useful way. This may simply involve the introduction of data collection tools/databases in order to evaluate programs in a quasi-experimental manner. Practitioners therefore need to form relationships with the tertiary education sector.

Implications for research

This review update has again highlighted the absence of reliable controlled studies of effectiveness in the area of policy interventions organised in sporting settings. Future research in this area must be rigorously designed and evaluated. Design issues of particular importance in this area include the following:

- Adequate control group: there should be a matched sporting organisation (e.g. by size, geographical area, demographics, etc) which does not receive the intervention.

- Baseline data, post-intervention data, and longer term follow-up data should be collected. Preferably, this data should come from the same cohorts who are surveyed at baseline, post-intervention and follow-up. Groups must be well-matched for baseline characteristics.

- As cluster designs are most commonly used in this area, there should be a sufficient number of clusters (sporting organisations) in each comparison group to allow for generalisable results and to allow significant differences to be detected. Furthermore, studies should recognise the cluster as the unit of intervention in the analysis and determination of sample size.

- If no control group is used, studies should ensure there are repeated measurements before and after the intervention to control for secular changes in the outcome (Ukoumunne 1999).

- Where possible, tools validated for population groups should be utilised to measure outcomes (such as sun protection habits, alcohol use, smoking status, frequency of healthy eating, etc). If no validated tools exist, research should be carried out to develop valid and reliable measurement tools.

- Studies must include both a process evaluation (to measure the integrity of the implementation and contribution of each component to the effectiveness of the intervention) and an outcome evaluation of behaviour change.

- The intervention should have a sound theoretical base which is explicitly reported in the publication.

- Outcomes should include development of policies, implementation of policies and changes in individual behaviour relating to the particular policy.

- Studies must report on information relating to context (e.g. social, political and cultural factors relating to the setting of the intervention and evaluation).

- Where policy is included as one component of the intervention, a factorial design should be used to determine the relative effectiveness of each component.

Literature in the sports area recommends an increase in the amount of research and evaluation of the activities conducted in sports settings (Corti 1996). This includes:

- Evaluation of effectiveness: a) comprehensively evaluate health promotion activities in consultation with the tertiary education sector; and b) collaborate between states and territories to evaluate supportive environments.

- Consistent use of indicators: nationally consistent minimum set of process and impact factors.

- Determining research priorities: determine the role that sports settings may play as a culturally appropriate vehicle for reaching people from culturally diverse backgrounds (eg. Indigenous people).

Improvements in the research conducted in this area are essential in order to move towards the provision of evidence-based interventions.

ACKNOWLEDGEMENTS

We acknowledge the authors of the first published version of this review (Jackson 2005): Nicki Jackson, Faline Howes and Sabrina Gupta. An advisory panel consisting of Caroline Sheehan, Shelley Maher, Trish Mundy and John Strachan (VicHealth); Rebecca Rees (Evidence for Policy and Practice Information and Co-ordinating Centre); Tony Kiers (VicSport); and Lisa Hasker (Victorian Little Athletics) was involved in the development of the original protocol for the review. Shelley Maher also provided additional comments on the review update.

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* *Indicates the major publication for the study*

CHARACTERISTICS OF STUDIES

Characteristics of excluded studies *[ordered by study ID]*

Study	Reason for exclusion
Geller 2001	Study did not address the effect of policy interventions alone
Glanz 2000	Study did not address the effect of policy interventions alone
Glanz 2002	Study did not address the effect of policy interventions alone

DATA AND ANALYSES

This review has no analyses.

WHAT'S NEW

Last assessed as up-to-date: 27 May 2007.

Date	Event	Description
9 May 2008	Amended	Converted to new review format.
9 May 2008	New search has been performed	Searches were updated in May 2007. No new studies were identified for inclusion
9 May 2008	New citation required but conclusions have not changed	The citation reflects new authorship of the updated review.

HISTORY

Protocol first published: Issue 2, 2004

Review first published: Issue 2, 2005

CONTRIBUTIONS OF AUTHORS

For the 2008 update

NP: Revised protocol, revised search strategy, screened titles and abstracts, judged full text articles, wrote complete review.

RA: Screened titles and abstracts, judged full text articles, edited complete review.

JD: Revised and contributed to complete review.

EW: Revised and contributed to complete review.

For the original review (Jackson 2005)

Nicki Jackson: Revised protocol, co-developed search strategy, screened titles and abstracts, judged full-text articles, wrote complete review.

Faline Howes: Wrote protocol, co-developed search strategy.

Sabrina Gupta: Conducted search strategy, screened titles and abstracts, judged full-text articles.

JD: Revised and made contributions to protocol.

EW: Revised protocol, edited complete review.

DECLARATIONS OF INTEREST

Funding for the review was provided by the Victorian Health Promotion Foundation (VicHealth).

SOURCES OF SUPPORT

Internal sources

- The McCaughey Centre: VicHealth Centre for Mental Health Promotion and Community Wellbeing, School of Population Health, University of Melbourne, Australia.
- Cochrane Public Health Review Group, Australia.

External sources

- VicHealth (Victorian Health Promotion Foundation), Australia.

INDEX TERMS

Medical Subject Headings (MeSH)

*Health Policy; *Organizations; *Sports; Alcohol Drinking [prevention & control]; Diet; Food Habits; Health Behavior; Health Promotion [*methods]; Prejudice; Safety; Smoking [prevention & control]; Sunburn [prevention & control]

MeSH check words

Humans