On this basis, the proposed framework for action consists of

- promoting the development of national injury prevention plans;
- improving injury surveillance;
- strengthening national capacity to (i) respond to the burden of injuries and (ii) provide services for victims of injuries;
- advocating for injury prevention activities and promote the implementation of effective measures;
- facilitating the exchange of knowledge and experience across the region;
- developing and strengthening partnerships;
- addressing local priorities particularly in transition countries;
- raising public awareness about injuries and opportunities for their prevention in different settings.

Lessons

Raising awareness about the magnitude and preventability of the injury problem in the European Region has placed injury prevention higher on the policy agenda.

Conclusions

This framework allows flexible adaptation to the specific needs of European countries in developing a response to the burden of injury.

Development of the Austrian injury prevention strategy 2006–2010: actions to save 250 000 lives

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Issue

The World Health Organization Regional Office for Europe proposed a framework for action that recommends to the Member States the development of national injury prevention plans throughout Europe. This recommendation is also made in 'Actions for a Safer Europe: Strategy Document of the Working Party on Accidents and Injuries for 2005–2008'.

The development of the Austrian Strategy draws on this knowledge base and sets out the Government's vision, goals, and political measures for a safer Austria.

Description

The purpose of the Austrian Injury Prevention Strategy is to provide leadership by the health sector at a national level by outlining the key political measures that will facilitate actions needed to reduce unintentional injuries in Austria. Furthermore, this Strategy establishes a framework for the injury prevention activities, which is inclusive enough to guide interventions from a range of sectors. The strategy will assist Austria to better focus its unintentional injury prevention efforts and resources by providing a clear direction to the range of agencies, organisations, and communities active in injury prevention work in Austria.

The plan consists of

- Vision
- Goals
- Objectives
- Actions at the national level
- Actions at the regional and local level.

Lessons

Developing a national strategy depends on leadership within a government ministry to mobilise the process and provide clear goals for measuring progress. Support and ownership need to take place at the government level for the strategy to have effect at the regional, community, and local level. Implementation will require the collaboration of government, non-government organisations, communities, and individuals.

Conclusions

The Austrian Injury Prevention Strategy is a living document that provides a basis for action and provides a recognisable and consistent strategic approach to unintentional injury prevention in Austria.

Track 2: Workshop: Systematic reviews and meta-analysis in public health: workshop of the EUPHA section on public health epidemiology

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Over the past two decades, systematic reviews and meta-analyses have been increasingly used in public health to summarise the findings of multiple research studies, particularly to understand the etiologies of health conditions and to determine the efficacy of public health interventions. These methods will be increasingly used in the future and practitioners must be able to understand and critique this research design. The workshop will provide an overview of the strengths and limitations of these methods in public health. Specific topics to be covered (and emphasised through examples from the public health literature) will include definitions and general methodology, potentials and problems of meta-analysis in public health, meta-analysis of observational studies, meta-analysis of published data, and meta-analysis of individual data. The workshop will create a discussion and identify training needs for public health professionals to be addressed in future EUPHA conferences.

Meta-analysis in public health: potentials and problems

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Meta-analysis has become increasingly popular in the last decade and it has assumed the top position on most proposed hierarchies of evidence. At the same time, meta-analyses are more cited in the health sciences literature compared with any other study design. The traditional role for meta-analysis

has been to compile information from diverse studies on the same topic, thus increasing power. However, there is an increasing recognition about the challenges that heterogeneity presents in data synthesis. It is important to quantify, assess, and potentially interpret heterogeneity, and try to distinguish between genuine between-study heterogeneity and biases. Although most meta-analyses are still based on group data from the literature, there are more examples now of prospective meta-analyses and meta-analyses of individual-level information. The advantages and disadvantages of different approaches will be briefly discussed. The advent of meta-analysis has offered a very useful tool for sensitizing researchers, physicians, and public health practitioners to the almost ubiquitous presence of biases in biomedical research. This introductory talk will cover briefly some of the common problems raised in meta-epidemiology, including the debates on large versus small studies, publication, time lag, and other reporting biases, quality appraisal of studies, and whether evidence evolves and changes significantly over time. It will also present the spectrum of application of meta-analysis methods in the health sciences, ranging from randomized trials to epidemiology and molecular epidemiology.

Can data from observational studies be pooled?

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The implementation of the Evidence Based Prevention (EBP) requires a better definition of the rules to be applied for using and pooling non-experimental evidence.

The best tool for summarizing the evidence is Systematic Review (SR). Choosing the study design for the inclusion of studies is a difficult task. For studies on risk exposure cohort and case–control studies are the most reasonable choice. For studies on health impact assessment the choice depends on the 'unit of administration': (i) intervention administered at the individual level: RCT is the best design; (ii) intervention administered at group level: a Cluster RCT is the most appropriate; (iii) intervention provided uniformly within a vast area (e.g. the fluoridation of water): Controlled Before-After study; and (iv) intervention consisting in a policy or a law: the only design providing results with low level of bias is the Interrupted Time Series. To produce pooled estimates with low level of bias, the rules of SR of RCTs have to be translated for SR of non-randomized studies: (i) the search strategy has to be standardized and comprehensive; (ii) unpublished studies have to be traced to reduce the risk of publication bias; (iii) exclusion criteria have to be defined, including the adjustment for confounding factors, and the conditional misclassification of exposure and outcomes; (iv) a quality appraisal of the included studies have to be performed; (v) data extraction has to be performed by pooling individual data or by calculating adjusted absolute numbers from adjusted RRs; and (vi) study heterogeneity has to be evaluated and dealt with, e.g. stratifying or performing sensitivity analyses.

In spite a number of SRs have been conducted using observational studies, a general agreement on the rules to apply has not yet been reached. To implement EBP, these rules have to be defined.

Assessing the effects of environmental exposures on human health: the role of meta-analysis of published studies

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Epidemiological studies are not always sufficient to demonstrate associations between environmental exposures and insurgence of acute and chronic diseases and in such situations a meta-analytic approach could be useful. Recently, we have performed meta-analyses of published epidemiological studies to assess the risk of childhood leukaemia associated with electromagnetic fields (EMFs) exposure and between residential exposure to radon and lung cancer. The meta-analysis based on wiring configuration codes yielded a pooled relative risk estimate of 1.46 and the meta-analysis based on exposure to 24 h measurements of magnetic fields gave an overall estimate of 1.59, indicating a potential effect of residential EMF exposure on childhood leukaemia. In most cases, lower risk estimates were obtained by pooling high-quality studies than pooling low-quality studies with a trend for more recent studies to be of higher quality. Enough evidence exists to conclude that dismissing concerns about residential EMF and childhood leukaemia is unwarranted. The meta-analysis on radon exposure indicated at 150 Bq/m^3 a pooled odds ratio estimate of 1.24, meaning a potential effect of residential exposure to radon on the risk of lung cancer. Pooled estimates of fitted odds ratios at several levels of exposure were all significantly ranging from 1.07 at 50 Bq/m^3 to 1.43 at 250 Bq/m^3. Although no definitive conclusions may be drawn, the results suggest a dose–response relationship between residential exposure to radon and the risk of lung cancer. Meta-analysis is useful in the identification of low risks that may elude single studies with the need for qualitative and quantitative recognition of the risks and the development of strategies aimed at the reduction of environmental human exposures.

Assessing the effects of environmental exposures on human health: the role of meta-analysis of individual data

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Meta-analysis has proven very useful in the analysis of clinical trials. Particularly, in situations where individual studies have been too small to allow for firm conclusions meta-analysis has been an adequate instrument in clarifying the situation. As a result clinical practice has been changed and patients are treated more effectively. There is now a growing hope that meta-analysis will be equally successful in resolving situations with conflicting epidemiological data. However, differences in design and susceptibility to bias across any group of epidemiologic studies must always be considered. Thus, the main focus of meta-analysis of epidemiological studies is not the estimation of a common mean effect, but rather the explanation of differences across study results. A recent meta-analysis of childhood leukaemia and electromagnetic fields will illustrate this point. This example will also illustrate the advantages of using the individual studies' original data rather than the published tabulated data.