EUPHA

EUROPEAN PUBLIC HEALTH ASSOCIATION

2002

Dresden, Germany

BRIDGING THE GAP BETWEEN RESEARCH AND POLICY IN PUBLIC HEALTH: INFORMATION, PROMOTION AND TRAINING

Hotel Hilton Dresden

28-30 November 2002

10th ANNUAL EUPHA MEETING 2002

Dresden · Germany · Hotel Hilton Dresden · 28–30 November 2002

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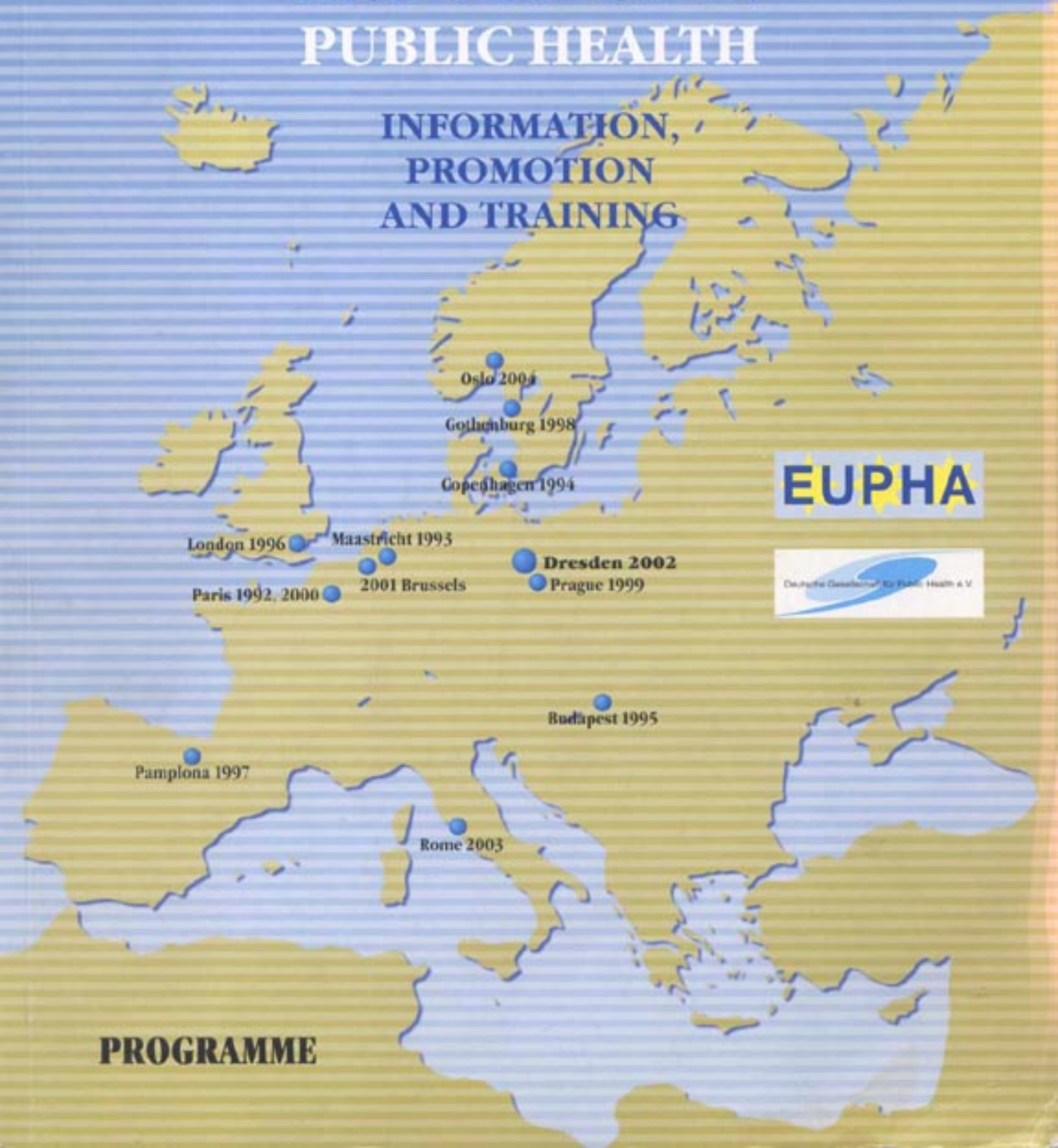

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PROGRAMME

Applicability of the tri-lateral methodological framework for impact estimation of road traffic related air pollution on health in Germany

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Background

Although the relation of traffic related air pollution and adverse health effects has been known for long, the quantification of this impact still poses a challenge.

Aim

We estimated attributable cases due to road traffic related air pollution (indicator PM10) for North Rhine-Westphalia (NRW) applying methods of the tri-lateral project approach carried out by Austria, France and Switzerland in preparation of the 3rd Ministerial Conference on Environment and Health in London (1999).

Methods

For exposure assessment the PM10-level in NRW was estimated, utilizing a spatial emission inventory on total suspended matter (TSP), measured TSP-concentrations, a default factor for converting TSP- to PM10-concentrations, and population density data. These data are available on city/county level from monitoring systems. The annual mean exposure level was obtained without further spatial dispersion modeling, by combining population data and estimated ambient PM10-level.

Attributable cases for three health outcomes – total mortality, respiratory-, and cardiovascular hospital admissions – were calculated for total- and traffic-related air pollution applying the dose-effect estimates and equations of the tri-lateral project to health data of NRW.

Results

For the state of NRW, we estimate an average population-weighed exposure level of 31 µg PM10/m^3. From this, we derive an estimate of 16,602 cases of mortality in adults >30 years (CI: 10,415–22,683) attributable to the total air pollution exposure level, and 5,851 (CI: 3,670–7,994) cases attributable to road traffic-related air pollution. 2,585 respiratory hospital admissions (CI: 203–4,804) and 6,566 cardiovascular hospital admissions (CI: 3,723–9,835) are estimated to be attributable to road traffic-related air pollution.

Conclusions

This first estimate for mortality- and morbidity cases attributable to road traffic related air pollution for NRW lies within the range of the tri-lateral project results, even though our estimated annual exposure is higher due to the "worst case" assumptions in the applied method of PM10-level prediction. For closer estimates, exposure assessments need to be based on higher spatial resolution including PM10 dispersion modeling.

Transport and Health: the Regional Perspective of Baden-Württemberg

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Introduction

Baden-Württemberg (BW) is the home of Mercedes-Benz and Porsche and thus a center of transportation technology. Its people love high-speed driving. Moreover, there is an extremely dense traffic, especially on the transeuropean expressways. Accordingly, there are many hot spots of transportation-related emissions. Several years ago, the "Ozone-Study" of BW exemplified the political importance of clean air measures.

Air pollution

There is a network of 67 stations, measuring continuously the common air pollutants (SO_2, NOx, CO; O_3, suspended particles, soot and organic compounds such as benzene). The public has online access to the data. Moreover, deposited particles are measured in selected stations. Additional measurement programs for benzene, soot and NO_2 are run in streets with very dense traffic. Clean air standards are made partly on a national basis (23. BImSchV, LAI) partly on a European basis (particles). Despite the increasing number of vehicles in BW (7 million, mean performance: 13000 km/a), exhaust emission controls (e.g. catalyst) have led to a decrease of major pollutants. This is expected to proceed until the year 2010. However, CO_2 emissions are continuously increasing.

Health effects

Health effects of the air pollution include asthma-like symptoms in sensible persons (NOx, O_3), cancer risk (benzene, soot), cardio-pulmonary complications (fine particles), as well as noise-related problems such as sleeplessness. The assumed cancer risk (about 1:1000) is much higher, than usually tolerated in environmental medicine. There is no genuine traffic-related health surveillance program. But a surveillance project, studying the lung function and pulmonary health of 10 year old children, did not find differences between rural areas and highly industrialized regions.

Outlook

From the point of view of public health, it is of primordial importance to introduce new technical solutions that will reduce the emission of fine particles and other pollutants.

Monitoring of Cardiovascular Diseases and Risk Factors: results from the EUROCISS project proposed by the EUROCISS Research Group

Chair: Lang, T. *

In Europe cardiovascular diseases (CVD) contribute about 40% to overall mortality in persons 35 years and older.

Ischaemic heart diseases and cerebrovascular accidents are the main CVD of interest because of their high prevalence in the population and possibility of prevention. Monitoring of CVD and their risk factors is a basic requirement for planning public health programmes. The purpose of the workshop, proposed by the Research Group of the European Cardiovascular Indicator Surveillance Set Project – EUROCISS, would be to identify major cardiovascular indicators that can be considered reliable and comparable across the Member States of European Union, to describe methods for monitoring and to suggest recommendations for future implementation of CVD indicators in member countries.

Monitoring of acute myocardial infarction and coronary heart disease

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Background

Coronary heart disease (CHD) is a major public health problem and a leading cause of death globally and in Europe. During the last decades CHD mortality and incidence of acute myocardial infarction (AMI) has declined in western European countries. In some other European countries the disease has increased. From the point of view of prevention it is important to follow incidence and prevalence of CHD in the population. The aim of this presentation is to describe ongoing activities for monitoring AMI and CHD in Europe.

Methods

Indicators for assessing the disease burden from CHD in a population that can be used in European countries have been identified by the European Cardiovascular Indicators Set (EUROCISS) project. An inventory of data available to monitor these indicators in 12 European countries has been developed.

Results

Indicators of CHD of central importance include mortality from CHD, incidence, attack rate and case fatality from AMI and prevalence of angina pectoris and heart failure. Of these indicators mortality from CHD is available for all 12 countries. In some countries information about incidence, attack rate and case fatality of AMI is available regionally, mainly through the MONICA project. In the Nordic countries information on these indicators may be obtained nationally by combining information on hospital discharges and deaths through record linkage. Information about hospitalized CHD is available in all 12 countries but does not provide direct information about disease occurrence. Prevalence of CHD may be assessed by survey methods but available survey data often lack important clinical measures.

Conclusion
CHD mortality and AMI incidence, attack rate and case fatality are covered nationally and/or regionally by ongoing monitoring activities in Europe. From the point of view of prevention it is important to preserve these activities and to extend them in time, geographically and to include also other indicators of CHD.

Monitoring of Stroke and Other Cerebrovascular Diseases

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Problem
Stroke is an important public health problem constituting approximately 10% of total mortality and 25% of cardiovascular mortality in European populations. Even more important than mortality is morbidity, since a stroke often requires prolonged hospitalization and causes permanent disability.
Description of the project
The most reliable way to monitor the occurrence of stroke events is population-based stroke registers. These have been used for example in the WHO MONICA Project. The problem with the stroke registers is that they are laborious and cannot cover large geographical areas. Another option is to use hospital discharge register data, preferably linked together with mortality register data. These can cover the whole country and all age groups, but are not based on standardized data collection procedures. We have recently shown that such a record linkage fairly reliably identifies first ever strokes in Finland in persons aged <75 years. However, re-hospitalizations for elective investigations or rehabilitation purposes also often received the ICD code of acute stroke in the Finnish Hospital Discharge Register, which made the identification of recurrent stroke events somewhat unreliable. Recent results of the FINSTROKE project show that during the 1990s almost all patients with an acute stroke had either MRI or CT investigation or autopsy, which makes the distinction of haemorrhagic and ischaemic strokes fairly reliable.
Lessons-learned
Caution is needed when interpreting hospital discharge data on the occurrence of stroke.
Conclusions
Record linkage of the hospital discharge register data with the mortality register data can be used for monitoring of stroke events if the findings are validated in smaller areas by means of a specific stroke register following standardized methodology.

Monitoring of Cardiovascular Risk Factors

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Cardiovascular diseases of atherosclerotic origin, are among the main causes of death, morbidity and disability in Europe. Although mortality and incidence rates of the principal cardiovascular clinical manifestations, i.e., coronary heart disease and stroke, appear to be declining in Western Europe, the public health burden of cardiovascular diseases is increasing in many countries, due to the aging of the population and to a higher prevalence of more chronic forms of disease. On the other hand, cardiovascular mortality rates are increasing in many parts of Central-Eastern Europe.
Smoking, high blood pressure, high serum cholesterol, diabetes and obesity have been for a long time scientifically well established risk factors for the occurrence of atherosclerotic diseases in individuals. Also at the population level, the WHO-MONICA Project has demonstrated that they play an important, though not the only role in explaining the dynamics of atherosclerotic diseases in the populations. Their monitoring is therefore essential to understand changes in incidence and mortality and to evaluate public health and other medical interventions addressed to improve the public's health.
However, many and important methodological and quality aspects need to be strictly adhered to, in order to obtain information on risk factors which is valid and comparable cross-culturally and along time. This type of issues are of crucial importance when establishing health information systems with the purpose to inform decision-making, given the resource implications and potential social impact involved in choosing action pathways based on that type of information.
During the workshop, the following topics will be addressed:
- Sampling and external validity
- Measurement methods
- Data reporting
- Resources needed to conduct valid risk factor surveys

Recommendations from the EUROCISS project

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Issue
The European Cardiovascular Indicator Surveillance Set Project – EUROCISS, within the framework of the Health Monitoring Programme of the European Commission, has as its objectives:
- identifying cardiovascular diseases of particular public health relevance by virtue of their frequency and possibility of prevention;
- conducting an inventory of available morbidity indicators;
- preparing recommendations for monitoring cardiovascular diseases in Europe.

The purpose of this presentation is to describe recommendations for the periodic monitoring of cardiovascular diseases to be used within different countries in order to obtain significant and reliable data.
Description of the project
On the basis of available indicators and in view of future implementation, a list of "short term" and "long term" indicators for cardiovascular diseases of interest will be presented.
"Short term" indicators, such as those obtained from mortality and hospital discharge records, are available at national level for both sexes and all ages in Europe. Other "short term" indicators such as data from record linkage of current data, used to calculate attack rates, are available only in few countries at regional or local level and are seldom comparable because of different diagnostic criteria.
"Long term" indicators, such as prevalence and incidence, require more time to be operative; they are considered the best indicators but more sources are needed for their collection. They allow also the calculation of attributable risk.
Lessons learned
Data on cardiovascular diseases are available from different countries, but, because of different procedures and diagnostic criteria adopted within Europe, they are rarely reliable, nationally representative or comparable between countries.
Conclusion
Since monitoring of both cardiovascular diseases and their risk factors is a basic requirement to plan public health programmes, quality of data and validation procedures are essential goals to be achieved. Standardised procedures as well as homogeneous diagnostic criteria are urgently needed to collect effective indicators for cardiovascular diseases.

Nutrition behaviour of children

Workshop Organiser: Karg, G. *

Nutrition behaviour has a strong influence on our health status. It is formed in childhood. The nutrition behavior of children is therefore of considerable interest for society and its institutions.
The first ones are the private households in which children live, eat and drink. Although in all types of households (e.g. low to high income) children have the risk of adopting unhealthy eating habits there are groups of households which deserve special attention. These are the low income households. *Leonhäuser* deals with this topic in a national and international perspective.
The second ones are the schools in which children learn for their lives.Meanwhile schools are in charge of teaching topics of nutrition and health. How well this is done in Germany is reported by *Heseker* on the basis of a survey carried out in primary and secondary schools of all 16 states of Germany.
The third ones are research institutes in charge of investigating and guiding the nutrition behavior of children. In this context the question arises how the scientific recommendations for the nutrient inake of children can be transformed into dietary guidelines which