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editorial

theory of risk and risk research

In order to discuss the main functions of risk research first the term risk should be clarified. However, it is not an easy task. The understanding of the notion of risk varies greatly between lay people and scientists involved to some degree in risk research, as well as among the members of the two communities.

To investigate the concept of risk among public health professionals, a small in-house survey has been carried out among the colleagues of the Unit for Health Promotion Research enquiring an answer to a simple question: "What comes first into your mind when you hear the word risk?" The study, regardless of its obvious shortages, still allows for drawing valuable general conclusions. Some tried to give and answer as a lay person but the majority provided a professional reply. Regardless of the approach, two main characteristics of risk appeared in several cases: risk refers to something bad, dangerous or unwanted and it is unavoidable. Professional responses related risk to probability of occurrence and severity, as well as to risk factors and activity areas of risk research, like risk assessment, management and communication.

The various approaches to risk are reflected in its several definitions available from professional sources. According to the Oxford Dictionary, risk is „a situation involving exposure to danger". Other interpretations often consider risk as a factor which contributes to immediate illness or death. Well, from a scientific point of view, we have to disagree with both of them.

Risk is studied in various disciplines, mainly in economy and business management, psychology and sociology, engineering and health sciences. In accord with the interest of public health and for the sake of simplicity, risk is understood as 'health risk' hereinafter. In the causal chain of a 'health event', there is a phenomenon (**risk factor, source of risk/danger**) that comes into contact (**exposure**) with a recipient (**human**) and initiates an effect (**health outcome**). **Risk explains** neither elements of this process but **the likelihood of occurrence and magnitude of the harmful event**. The distinction is made clear e.g. in occupational health where hazard (potency of a factor to cause harm) and risk (probability that a factor causes harm) are strictly differentiated.

Hazard is a universal characteristic while risk always relates to place and time. Jungermann and Slovic (1993) add to this concept that risk is a function (usually the product) of the probability and magnitude of a harmful event, as well as a variance of the probability distribution of all the possible consequences of a decision. The latter idea implies that the possibility of the occurrence of an adverse effect can be a result of both natural events and human activities, that is, humans

can make causal connections between actions and alter them. This notion leads to the issue of what we can and should do about risk, i.e. to the role of risk research.

Functions of risk research

Using the above arguments, the functions of risk research can be outlined. In broad sense it could be explained as any scientific activity that investigates the elements of a causal chain leading to a health effect. This approach, however, would equate e.g. the whole discipline of public health with risk research. Instead, risk research focuses on the development of methodological concepts and tools for the analysis of risk and implements risk analysis in practice that incorporates risk assessment, risk management and risk communication, including formulation of policies related to risk.

Risk assessment characterizes the level of risk in a certain context (place and time) by identifying hazards, estimating or measuring the level of exposures and considering dose-response (exposure-effect) functions. Based on the characteristics of risk, decision has to be made whether risk is acceptable or should be managed. In the latter case, **risk management** identifies possible means for risk reduction and implements effective action that also needs an understanding of the stakeholders' **risk perception** and means of **communication** with them.

The present issue of HPR News aims to give an insight in the various issues of risk research and describes the goals and activities of the Unit in the field. Jesper Bo Nielsen and Lars Damkilde explain the establishment and vision of the Danish Center for Risk and Safety Management from the views of the collaborating parties. Gabriel Gulis and Balázs Ádám discuss the role and methodology of risk assessment in the process of health impact assessment. Anja Leppin explains the challenges of risk communication practice. Finally, a review of the publications from the Unit on the topic of risk perception is provided, prepared by student assistant Camilla Tykgaard Clausen.

The Unit and the Risk Center welcomes any ideas on interesting topics in risk research and on possibilities for collaboration.

Balázs Ádám

risikoteori og risikoforskning

Der er stor forskel på, hvad vi – både som lægfolk og forskere - forstår ved begrebet risiko. Selv professionelle kilder og opslagsværker som f.eks. Oxford Dictionary og andre kommer med vidt forskellige bud på, hvad risiko dækker over. Det være sig f.eks. en situation, som involverer udsættelse for fare. En anden fortolkning lyder på, at risiko er en faktor, som medvirker til øjeblikkelig sygdom eller død. Vi som forskere har en anden definition af begrebet risiko. Der forskes i risiko inden for en række forskellige områder så som virksomhedsledelse, psykologi, sociologi, ingeniørvirksomhed og sundhedsvidenskab. Med udgangspunkt i interessen for folkesundhed og for enkelthedens skyld, taler vi i det efterfølgende om sundhedsrisiko. Vi definerer **risiko** som sandsynligheden for og omfanget af en sundhedsskadelig hændelse. Vi forklarer **Risikoforskning** som en forskning, der fokuserer på udvikling af metodiske koncepter og redskaber til risikoanalyse. Herunder gennemførelse af risikoanalyser i praksis, som involverer risikovurdering, risikostyring, kommunikation og formulering af risikopolitikker.

I denne her udgave af HPR News vil vi forsøge at give et indblik i de forskellige problemstillinger inden for risikoforskning, og forskningsenhedens aktiviteter og mål inden for området vil blive belyst gennem forskellige indlæg.

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Front page photo by Line Richter
Abstracts by authors and unit secretaries

Editor-in-chief Arja R. Aro

araro@health.sdu.dk

Managing Editor Stella Kræmer

skraemer@health.sdu.dk

danish risk centre

for risk and safety management (RISK): new opening for both education and research

A new and promising collaboration around risk research and management has started in Esbjerg. Partners represent the two universities in Esbjerg and Esbjerg. The purpose of RISK is to support private and public decision makers with evidence-based knowledge and education within risk and risk management.

Research is intended to be cross-disciplinary and use the strengths from the different participating research traditions and experiences. The research themes are expected to focus on a) risk perception and behaviour, b) risk assessment and modelling, and c) risk management and communication. A priority from the funding bodies has been establishment of an educational initiative within the risk area placed in Esbjerg, and during 2012 a master program within risk and risk management has been developed and recently also accredited at Ålborg University in Esbjerg. This has been a major achievement for the first year and has required much dedication and work from all units. The participating units are the Department for Civil Engineering at Ålborg University, Department of Environmental and Business Economics from SDU, and the research units for Health Promotion and Centre for Maritime Health and Society from Institute of Public Health from SDU. The first students at the master program are intended to be enrolled in September 2013.

Professor Lars Damkilde from Department of Civil Engineering at Ålborg University was appointed as research leader and administrative head of the centre. During 2012 three research positions within RISK have been filled a junior researcher at Ålborg University and two senior researchers at postdoc level at SDU. Both positions at SDU are filled with candidates from outside Denmark, which will be expected to further strengthen the research base for the risk area for the coming years. Within the participating research units' research and PhD projects are already established and will be expected to be supportive in the further development of this research initiative during the coming years.

This research and educational initiative is collaboration between Ålborg University and University of Southern Denmark. With strong organizational support form Esbjerg Erhvervsudvikling (Tom Nielsen), the campus head from Ålborg University in Esbjerg (Anders Kristensen), the former head of Department of Environmental and Business Economics at SDU in Esbjerg (Flemming Just), and head of Institute of Public Health at SDU (Jesper Bo Nielsen) worked out a proposal for establishing a Danish Centre for Risk and Safety Management (RISK) to be situated in Esbjerg. With generous support from the Claus Sørensen Foundation (5 million DKK) and the vice chancellors from Ålborg and Odense, the centre was established in 2011 with a total budget of 10 million DKK.

Jesper Bo Nielsen, head of Institute of Public Health, SDU

dansk risikocenter (risk) åbner op for nye muligheder

SDU og Aalborg Universitet har indgået et nyt og lovende samarbejde om risikoforskning og risikostyring. Der er tale om etableringen af Danish Centre for Risk and Safety Management (RISK)i Esbjerg, som er et samarbejde mellem Syddansk Universitet (Institut for Miljø- og Erhvervsøkonomi og Institut for Sundhedstjenesteforskning) og Aalborg Universitet Esbjerg (Institut for Byggeri og Anlæg). Formålet med centret er at understøtte private og offentlige beslutningstagere med evidens-baseret viden og uddannelse inden for risiko og risikovurdering. Forskningsmæssigt vil der blive tale om tværfaglig forskning med fokus på følgende hovedområder: a) Risikoopfattelse og risikoadfærd, b) Risikovurdering og udformning og c) Risikostyring og kommunikation. Uddannelsesmæssigt er der udarbejdet en kandidatuddannelse, som er blevet akkrediteret for nylig. Via hårdt arbejde og stor helligelse til opgaven, er det lykkedes de deltagende enheder af opnå et flot resultat inden for blot ét år. De første studerende på kandidatuddannelsen forventes at starte i september 2013.

danish risk centre

an engineer's point of view

Risk and safety in Structural Design

Risk and Safety are terms used in many different areas e.g. health care, financial investments or maritime activities. My background is Structural Mechanics and in this field we deal with design of bridges, offshore structures, wind turbines etc. The structures should be very reliable, and the level of safety is determined based on a risk analysis. The loading from e.g. waves in the North Sea is determined based on a combination of wave statistics and the cost of failure. Design of structures has over the years developed a very sophisticated safety philosophy where the level of safety is regulated so that e.g. the level of safety is independent of the construction material e.g. steel or concrete. In other areas of engineering e.g. fire protection the risk and safety is somewhat more complicated. The structural aspects of fire are relatively well understood – actually the big fear of timber buildings is not true in modern buildings but the communication of risk to the public has not succeeded. But the evacuation aspect in fire protection is a much more complicated field. Nowadays airports, railway stations and shopping malls are designed with very big open spaces and this gives the engineers big challenges in order to secure a high level of safety.

RISK -Danish Risk Centre and new MSc study in Risk and Safety Management

The primary objectives of RISK are to develop an interdisciplinary Master of Science programme in Risk and Safety Management comprising topics from the fields associated with the three departments and to conduct common research projects within Risk and Safety Management. In November 2012 we succeeded in getting the final accreditation for a M.Sc. programme in Risk and Safety Management. The programme is now open for students to start in February 2014, see: www.risk.civil.aau.dk for the study program.

The courses in the study programme will be given by teachers from the three involved Departments and other internal/external partners. We are now in the process of preparing the marketing of the education in order to attract students for the programme. The Esbjerg area is, due to the offshore sector, in constant need of new employees, and hopefully the new education can solve some of this demand. I expect that the new education will give an increase in number of students, and not just move students from one study programme to another. That was also the reason why the new MSc education is called in Danish 'Cand. Scient. Techn.', which shows that it is not an engineering education although there are many technical elements in it.

The Risk Centre was established based on a very generous gift from Claus Sørensens Fond, which is closely related to Esbjerg. Both Aalborg University and University of Southern Denmark have allocated substantial resources, and the municipality of Esbjerg has put the Risk Centre on their list of high prioritized research/educational activities. Esbjerg is the offshore city of Denmark and almost all companies in the offshore/maritime sector are involved in Health and Safety. The Risk Centre is collaboration between the Department of Civil Engineering (AAU), the Department of Environmental and Business Economics (SDU) and the Institute of Public Health (SDU).

RISK research plans

The common research activities across the involved disciplines and institutions are still in the starting phase. However, I personally hope that we can contribute within the evacuation area. I have had several discussions with Viking Life-Saving Equipments, which was founded by Tage Sørensen (son of Claus Sørensen), and hopefully we can establish research projects in this area. The basic problem is to evaluate the level of risk in life saving operations and be able to compare different equipment sand alternative strategies. The research elements will be simulation and experiments, which have many similarities with the structural simulation I have done for years. The new part will be the human part. In structural models the material part is strictly rational. It may have some stochastic variations but the reaction of steel or concrete to pressure is based on a very well founded theory, and our models have been tested in destructive tests to find the limits. The new and challenging element is to develop mathematical models for human reactions which are very complex e.g. the interaction between people, panic, reactions to sound etc. In this area we will have to develop a very close cooperation, since this area is multi-disciplinary. Personally I believe that this area also could create new commercial activities.

More personal remarks

Starting new activities always gives a lot of work, a lot of disappointments, a lot of criticism and paradise seems very far away. What makes a reasonable rational person take this challenge instead of just continuing within structural engineering, which is also booming in Esbjerg?

Photo 1 Lars Damkilde, Professor in Structural Mechanics, Ph.D. Head of Danish Centre for Risk and Safety Management (RISK) Department of Civil Engineering, Aalborg University

Here I will divide the argumentation into two parts. The first deals with the importance for the community of Esbjerg. The Universities have to attract students in order to supply industry with highly educated candidates; otherwise activities may find their way to other cities. I trust that the RISK programme will give a net increase in students. The second deals with research. My research has primarily dealt with simulation of mechanical systems i.e. computer models of structures e.g. an offshore jacket. The computer model can be used to simulate e.g. ship collisions or extreme waves, and decide whether or not the structure has sufficient reliability. Extending the simulation to involve human beings' reactions could be quite promising. For engineers simulation is the first step in optimization, i.e. in improving the structural layout or the evacuations plans. This part is hopefully also interesting for the companies in Esbjerg even though the time scale for this kind of developments will be longer.

Lars Damkilde

det danske risikocenter – en ingeniørs synspunkt

Danish Centre for RISK and Safety Management er et samarbejde mellem Syddansk Universitet (Institut for Miljø- og Erhvervsøkonomi og Institut for Sundhedstjenesteforskning) og Aalborg Universitet Esbjerg (Institut for Byggeri og Anlæg). Centret skal bringe Esbjerg på banen som førende inden for forskning i sikkerhed og risikovurdering. Til februar 2014 forventes det første hold med studerende at starte på centerets kandidatuddannelse og dermed uddanne kvalificeret arbejdskraft inden for sikkerhed og risikovurdering til virksomhederne i Esbjergområdet. Underviserne kommer fra begge universiteter samt eksternt. Byen Esbjerg er kendt som Danmarks 'offshore by', og kommunen har også sat RISK centret højt på prioriteringslisten over forskning og uddannelse. Lars Damkilde, der er daglig sektionsleder for RISK centret, beskriver dets fagområde som teoretisk og mekanisk modellering samt som eksperimentel karakterisering af konstruktioner og bygværk samt konstruktions- og bygningsmaterialer. Forskningen inkluderer analyser af komplekse, bærende konstruktioner som for eksempel offshore-konstruktioner, vindmøller, skalkonstruktioner og store broer, af konstruktionsdetaljer for disse og af konstruktionsmaterialerne, som indgår i disse. Virksomheden Viking Life-Saving Equipments er blevet kontaktet med henblik på forskningsprojekter inden for simulering og forsøg, hvoraf den nye vinkel er menneskelige reaktioner. Det er en god reklamemæssig attraktion for Esbjergs universiteter med nye studerende og ny forskning i dette område af Danmark. Ellers kan faren være, at aktiviteter som disse, rykker til andre byer i Danmark.

risk assessment

in health impact assessment

It is often discussed whether **health impact assessment (HIA)** is not just another term or form of **risk assessment** and what is the relation of these two methods. This short comment aims to clarify this issue.

Risk assessment is a well standardized scientific method aiming to establish information upon the probability of a defined hazard (risk factor) to harm health, preferably in a quantitative manner. For example, presence of asbestos in a specific environment in 100 fibre-years/mL concentration can increase the risk of lung cancer by 66% from 62 per 100000 to 103 per 100000 persons in the Danish population. The inputs for the characterization of risk are hazard identification, exposure assessment and dose-response consideration.

On the other hand, **health impact assessment** is a process to assess future impacts of recent policies, projects and plans (proposals) on a defined population. In principle it makes a projection for a future scenario rather than assessing a present situation. As part of this process risk assessment can be used to characterize the effect of well-defined hazards related to a project, policy or program. For example, a process of decommissioning of old ships containing asbestos can be assessed by health impact assessment and within that process a risk assessment of increased lung cancer is certainly justified to be done.

Risk assessment usually assesses relation of one very well defined hazard (risk factor) to a very well defined health outcome of the exposed population. Within HIA usually several individual risk assessments are needed in the risk appraisal phase to assess effects of various hazards on different health outcomes. The detailed assessment of health effects typically needs the analysis of the full impact scheme and must follow each level of the causal chain from the proposal through related health determinants and risk factors to health outcomes. Exposure assessment characterizes the exposure level expected in the future. The feasibility of its quantification is based on the availability of applicable exposure measures and numerical information on the baseline level/prevalence of exposure, as well as on the expected change of exposure related to policy/program implementation. In the final step, health outcomes can be assessed. Quantification needs a decision on what kind of health measures (i.e. epidemiological frequency measures) to use as input and output data of the calculation process. Valid baseline frequency data of the health condition, as well as that of dose/exposure-response functions applying dose-response coefficients or relative risks is indispensable for the success. The result of quantification can be a frequency measure (frequency of occurrence, morbidity, hospitalization, mortality, etc.), or favourably a complex measure of disease burden, like attributable death, potential years of life lost, and disability adjusted life years. The latter is an advantageous choice for expressing results of a risk assessment in a quantitative way, since it is a complex measure of disease burden combining effect on morbidity and mortality.

Health impact assessment is usually lead and completed by a large, preferably intersectoral steering group under leadership of those who launched it with public representatives (representatives of communities at risk). Risk assessment in contrary is a usually licensed scientific process completed by licensed experts. Risk assessors can be a part of the HIA steering group unless this part of the work is outsourced contract based.

Gabriel Gulis and Balázs Ádám

risikovurdering og sundhedskonsekvensvurdering

Det bliver ofte diskuteret, hvorvidt sundhedskonsekvensvurdering blot er en anden betegnelse for risikovurdering, samt hvordan disse to metoder egentlig hænger sammen. Risikovurdering er en standardiseret videnskabelig metode beregnet til at indsamle informationer om sandsynligheden for, at en defineret fare (risikofaktor) kan skade sundheden. Til forskel er sundhedskonsekvensvurdering en proces, som gør det muligt at måle de fremtidige indvirkninger af nuværende politikker, projekter og planer – inden for en defineret befolkningsgruppe. I stedet for at måle den nuværende situation, er det snarere en prognose for et fremtidigt scenarie. Risikovurdering vurderer ofte sammenhængen mellem en veldefineret fare (risikofaktor) og et veldefineret helbredsudfald. Hvorimod der i risikovurderingsfasen ved en sundhedskonsekvensvurdering ofte er behov for adskillige individuelle risikovurderinger for at kunne vurdere den indflydelse, som de forskellige faremomenter har på helbredstilstanden.

risk communication

Health risks are usually high on the agenda not only of health professionals but also of policy makers and many members of the general public. This is true whether a government health agency runs a campaign against sun exposure and use of tanning beds, newspapers run headlines about a salmonella outbreak or an increase of certain types of cancer, whether general practitioners tell their patients that their blood pressure is too high, a citizens group files a petition for speed limits in their neighbourhood to the city council or concerned parents call a government hotline for information on the safety of a childhood vaccine.

Such an agreement on the importance of health issues does, however, not imply that the specific issues that cause experts, decision-makers or the general public to be concerned are necessarily the same. On the contrary, risk perception research has provided ample evidence that the health issues which experts and decision-makers consider relevant are often not the ones that lay people would define as “risky”. Pesticides in food, phthalates (plastic softeners) in children’s toys or a waste incinerator in the neighbourhood are thus often more strongly associated with “risk” and cause concern or upset in people than their own lifestyle activities such as drinking alcohol, consuming fatty foods or engagement in high risk sports such as paragliding. Whereas many people tend to prefer “zero risk” for the first type of hazards, tolerance levels are commonly a lot higher for the latter type of risks. A main reason for this is that the former are perceived as involuntary and unknown while the latter at least seem to be under personal control and often are a very familiar part of one’s daily living. More than that, many people have difficulties perceiving the benefits of food pesticides or chemicals in toys while on the other hand they are very much aware how much they enjoy alcohol and fatty foods or get a kick out of paragliding. Defining issues as “risks” and making decision about how to manage those does thus not “just” involve factual evidence and probabilities of events. A major factor complicating the process is that evidence might be incomplete and/or might be contested. The most obvious current example of this type of risk issue probably is the climate change debate. Assessment and labelling of an agent, an event or a process as a “risk” and the ensuing attempts at managing and controlling this risk nearly always touch on personal and/or collective value systems as well as aspects of individual or social identity.

Consequently, **risk communication has to be much more than just a one-directional sub-strategy of risk management** in terms of a set of tools meant to “fix” the public’s lack of knowledge or misperceptions about probabilities of harm associated with smoking, failing to exercise, missing mammography screening or deciding for a certain type of medical treatment and against another. Such messages are certainly important and should be well-designed based on sound knowledge of the target group’s prior knowledge and understanding.

However, from a wider perspective, risk communication transcends this narrow and more technical definition of a one-directional “enlightenment process”. From this wider perspective risk communication is also about exchange and dialogue between different stakeholders, such as experts, decision-makers, interest groups and individual citizens, involving them all in the extended process of assessing risks and risk trade-offs. In the same vein, it is also about the weighing of different management options and their relative costs and benefits for different segments of the population, which includes dealing with issues of justice and equity in the distribution of risks. .

Being able to analyze and manage these communication processes is becoming an increasingly important competence for public health professionals working in a wide variety of areas, from administration to health education or the media. The Public Health Master Program within SDU has therefore recently begun to include a module on this topic. It familiarizes students with the demands and challenges for health risk communication as well as the strategies and evidence-based methods for meeting them in different types of situations. Topics covered in the program range from individual risk factor communication in clinical settings to population-based risk prevention campaigns and from communicating about environmental hazards to emergency risk communication in case of pandemic outbreaks.

Anja Leppin

risiko kommunikation

Generelt står sundhedsrisiko højt på agendaen hos såvel sundhedsprofessionelle, politiske beslutningstagere og en stor del af befolkningen. Én ting er, at man er enige om vigtigheden af sundhedsanliggender. Dette betyder imidlertid ikke, at det er de samme problemstillinger, som bekymrer eksperter, beslutningstagere og befolkning generelt, tværtimod. Forskning inden for risikoopfattelse har leveret utallige beviser på, at befolkningen, i mod sætning til professionelle og eksperter, har en helt anden opfattelse af, hvad der er sundhedsfarligt. Ufrivillige og ukendte faktorer så som pesticider i mad, ftalat i legetøj eller en kasseret forbrændingsovn i baghaven vækker ofte langt større bekymring blandt befolkningen end deres egen livsstil så som indtagelse af alkohol og fedtholdig mad eller udøvelse af farlige sportsgrene.

Risikokommunikation skal derfor ikke kun opfattes i en snæver forstand, hvor der er tale om en oplysende envejskommunikation, der på forskellig vis forsøger at afhjælpe borgerens manglende viden om eller misfortolkning af risikoen ved at ryge, undlade at motionere, udeblive fra mammografi etc. Set i et lidt bredere perspektiv er risikokommunikation i ligeså høj grad et spørgsmål om udveksling og dialog mellem forskellige interessenter så som eksperter, beslutningstagere, interessegrupper og de enkelte borgere.

For sundhedsprofessionelle bliver det tiltagende vigtigt at besidde de nødvendige kompetencer til at kunne analysere og styre disse kommunikationsprocesser. Uanset om det gælder administration, sundhedsuddannelse eller pressen. Som et forholdsvis nyt tiltag, indeholder kandidatuddannelsen i folkesundhedsvidenskab på SDU derfor også et modul om risikokommunikation.

unit risk research

This summary provides a review of the studies on risk perception conducted by colleagues of the Unit for Health Promotion Research in the past five years. Arja R. Aro, Anja Leppin and Gabriele Berg-Beckhoff have published several articles on risk perception in relation to pandemic infectious diseases, non-communicable diseases and environmental exposures.

A series of studies were conducted that explored the determinants of behavioural responses to infectious disease outbreaks. These studies followed the outbreaks of severe acute respiratory syndrome (SARS) and avian influenza (AI) (1) (2). An eight-country survey was conducted to explore the levels of perceived threat, severity and vulnerability, response efficacy and self-efficacy for SARS and eight other diseases. The study showed that the perceived threat varied among countries. European countries had a higher level of perceived severity, while Asian countries had higher levels of perceived vulnerability, response efficacy and self-efficacy. The

study also showed a relatively high perceived threat for SARS, which indicates that SARS is seen as a public health risk, and offers a basis for communication in case of an outbreak (3).

A comparison between Finns and Dutch, who both were unaffected by the SARS outbreak (with the exception that one Finn died from SARS in Asia, which got abundant media attention in Finland) , showed that Finns were more knowledgeable and worried about SARS, they had lower personal efficacy beliefs about preventing the disease and they had lower perceived comparative risk. The study shed light on how two European populations can differ substantially regarding lay responses to SARS (4).

An additional study among Finns sought to analyze associations of psychological factors and willingness to take health risks on holiday and business trips. The study found that younger travellers and those on holiday are more willing to take travel-related health risks than older travellers and people on business trips. Therefore travel advices should be differentiated during epidemics, targeting different subgroups of travellers (5).

Photo 2 Student assistant Camilla Tykgaard Clausen

A study explored levels of knowledge, possible attitudes and practices among high-risk groups for AI. Poultry workers from Nepal were interviewed, and the study found that the poultry workers' primary sources of information were TV, radio and newspapers. Their knowledge on preventive methods was insufficient; however, those with higher level of information engaged in more preventive behaviours. The study stressed the importance of targeting lack of information, structural barriers and poor accessibility of preventive materials, especially among high-risk individuals (6).

A review aimed at collecting theoretical frameworks and conceptualizing risk perception on pandemic influenza. Authors found that the research on risk perception was rarely theory based or conceptually clear, possibly because the reviewed studies were mostly launched as rapid responses to outbreak situations (7).

A study examined how people, diagnosed with coronary heart disease (CHD), perceived their risk of having a myocardial infarction (MI). The investigation focused on the mediating effect of gender and socioeconomic differences. The perceived risk was measured as perceived absolute and relative risk of having a MI. In measuring relative risk, the Finnish study-participants were asked to compare their risk of having a MI to an average Finn of same gender and age, and one of same gender, age and who also had CHD. The study showed a surprisingly high prevalence of optimistic perceived risk. Even subgroups of high-risk participants, like smokers, overweight persons and

people with a history of MI, had high relative optimism. The study found no mediating effect of gender and education. The differences between the study-participants could be explained by differences in disease severity and psychosocial resources. The results suggest challenges for secondary prevention in CHD, especially regarding communicating risk information and supporting lifestyle adjustments (8).

Perception of risk related to electromagnetic fields was investigated in several studies. One study showed that a substantial proportion of the German population is concerned about adverse health effects caused by exposure from mobile phone base stations (MPBS) (9).This is despite the fact that there is no clear association between radiofrequency electromagnetic fields (EMF) from MPBS and health outcomes. Another study examined whether risk perception of MPBS is associated with concerns about other environmental risks and psychological factors. People who were more concerned with environmental and health risks were also more concerned with MPBS and had more health complaints regarding exposure from them. The concerned subjects had more disadvantaged scores for stress, anxiety, depression and psychological well-being. General concern and psychological strain were strong predictors for risk perception of MPBS, therefore the conclusion could be drawn that risk perception of MPBS reflects to a large extent general personal characteristics (10).

Additional studies on general practitioners´ risk perception on electromagnetic fields showed that approximately one out of three German general practitioners associate EMF with health complaints and thereby deviate from current scientific knowledge (11). Moreover some general practitioners aren't reluctant to give protective recommendations to their patients, like removing electrical equipment or moving to another location. The authors concluded that this ignorance may have major consequences in the patients' lives and worsen lay people´s EMF risk perception (12).

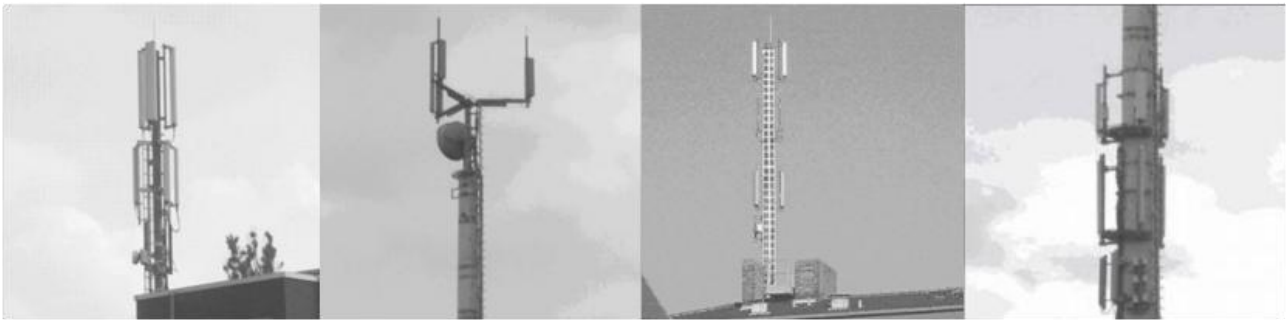

Photo 3 Cell phone towers

These acknowledged international and interdisciplinary studies bear witness of the Unit´s activity in the field of risk of risk research.

Camilla Tykgaard Clausen

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risiko review

Dette resume samler de studier, som forskningsenheden for sundhedsfremme har skrevet om risk perception de sidste fem år. Arja R Aro, Anja Leppin og Gabriele Berg-Beckhoff har udgivet adskillige artikler om risk perception i relation til pandemiske infektiøse sygdomme, kroniske ikke-infektiøse sygdomme og miljømæssige eksponeringer. En serie af studier undersøgte den adfærdsmæssige reaktion på SARS og fugleinfluenza i forskellige befolkningsgrupper. Disse grupper varierer i nationalitet og smitterisiko. I forbindelse med denne serie af studier, blev der også udført et litteratur review om risk perception ift. pandemisk influenza. Der er blevet foretaget en undersøgelse af risk perception blandt finnerne med høj risiko for myokardieinfarkt. Derudover har adskillige studier undersøgt tyskeres risk perception ift. elektromagnetisk stråling fra mobiltelefonsendemaster, både blandt borgere og praktiserende læger.

Disse internationalt anerkendte og tværvidenskabelige studier vidner om forskningsenhedens aktivitet indenfor risk perception feltet.

risk glossary

There is still need for a unified understanding of the terminology of risk research. This glossary intends to provide short, practicable definitions for the key terms of risk research. Definitions are used with modifications from the indicated sources.

Term	Definition
Hazard	The potential of a risk source to cause adverse effect/event. (1)
Risk	The probability and severity of an adverse effect/event occurring to man or to the environment following exposure, under defined conditions, to a risk source. (1)
Risk analysis	Broadly defined, the process including risk assessment, risk characterization, risk communication, risk management, and policy relating to risk. (2)
Risk assessment	The evaluation process of the nature, likelihood and severity of an adverse effect/event occurring to man or the environment following exposure, under defined conditions, to a risk source. The process comprises of hazard identification, dose-response assessment, exposure assessment and risk characterization. (1,2)
Risk perception	The attitudes and intuitive judgments about risk. (1)
Risk management	The process of weighing policy alternatives in the light of the result of a risk assessment and other relevant evaluation and, if required, selecting and implementing appropriate control options. (1)
Risk communication	The interactive process of exchange of information and opinion on risk among risk assessors, risk managers, and other interested parties. (1,4)
Risk governance	The enabling of societies to benefit from change while minimising the negative consequences of the associated risks. (5)

Balázs Ádám

risiko ordforråd

Der er stadig behov for en fælles forståelse af de forskellige terminologier, som benyttes inden for risikoforskning. Formålet med nedennævnte ordforklaring et at give korte, anvendelige definitioner af de nøglebegreber, som anvendes inden for området. De oversatte definitioner er modificeret fra de angivne kilder.

Term	Definition
Fare	Potentialet for at en risikokilde forårsager uønskede bivirkninger/uønsket hændelse. (1)
Risiko	Sandsynligheden for og omfanget af en uønsket begivenhed inden for et givet tidsrum, hvor personer eller miljø, under givne forhold, eksponeres for en risikokilde. (1)
Risikoanalyse	Det kan i store træk defineres som en proces, der inkluderer risikovurdering, risiko-karakterisering, risikokommunikation, risikostyring samt risiko-relaterede politikker. (2)
Risikovurdering	Evalueringsprocessen, der omfatter karakteren, sandsynligheden og omfanget af en uønsket effekt/hændelse, hvor personer eller miljø, under givne forhold, eksponeres for en risikokilde. Processen indbefatter påvisning af fare, vurdering af dosis-respons og eksponering samt risiko-karakterisering. (1,2)
Risikoopfattelse	Holdninger til og intuitive opfattelser af risiko. (1)
Risikostyring	Processen, hvor politiske alternativer vurderes på baggrund af risikovurderingens resultater og andre relevante evalueringer. Endvidere kan processen indebære udvælgelse og implementering af passende kontrolmuligheder, såfremt dette findes nødvendigt. (1)
Risiko kommunikation	Den interaktive proces i udvekslingen af information og meninger om risiko. (1,4)
Risiko governance	At gøre samfund i stand til at drage fordel af forandringer samtidig med, at de negative konsekvenser, som er associeret med risici, minimeres. (5)

1. European Commission. First report on the harmonization of risk assessment procedures – part Brussels: EC, Scientific Committee´s Working Group, 2000. http://ec.europa.eu/food/fs/sc/ssc/out84_en.pdf.
2. Society for Risk Analysis, http://www.sra.org/
3. Environmental Protection Agency, http://www.epa.gov/risk_assessment/basicinformation.htm
4. World Health Organization, http://www.who.int/foodsafety/micro/riskcommunication/en/index.html
5. International Risk Governance Council, http://www.irgc.org/risk-governance/what-is-risk-governance/

eupha conferece

the european public health association (eupha) and the association of schools of public health in the european region (aspher). malta, november 7th - 10th 2012

In November 2012 the 5th joint conference combining the 20th annual EUPHA meeting and the 34th annual ASPHER meeting took place in the sunny and still warm Malta. This conference with 1,200 registered participants, 802 submitted abstracts from 56 countries and 75 submitted workshops offers a platform for exchanging information, debate to researchers, policy makers, and practitioners in the field of public health and health services research as well as public health training and education in Europe. The conference chair Julian Mamo from the Maltese Association of Public Health Medicine pointed out to emphasize more traditional and core aspects in public health and re-iterate their importance within the working of public health today.

Photo 4 EUPHA held at Malta 2012

The Unit for Health Promotion Research was involved in many kinds of scientific activities. Several poster and oral presentations were done, sessions were chaired, group works were lead and workshops were organised. For example, scientists from Canada, Finland, Italy, Netherlands and Denmark presented the country specific challenges in international physical activity policy analysis. They are working together in the international EU project REPOPA which is coordinated by SDU/by Arja R. Aro. The recently developed EUPHA section of Health Impact Assessment (HIA) with already 137 members is led by Gabriel Gulis and Rainer Fehr. Two workshops were organized by them about collaboration of different impact assessment techniques with regard health and implementation of HIA in different contexts. Finally the well-established section of Health promotion was represented with a workshop organised by Christiane Stock on the theme “Theory-guided health promotion interventions: Examples and critical assessment”. The workshop provided insight into the importance of theory in health promotion and into the Intervention Mapping framework.

As one important keynote topic the talk by Laura Morlock should be named. She tried to debate about and to answer the question “Why can’t we get from the evidence to the policy perspective

from North America?" She pointed out the increasing awareness within the health policy community about the interest in various approaches to implement science.

The next European Public Health Conference with the topic: "Health in Europe: are we there yet? Learning from the past, building the future" takes place in Brussels, Belgium in November 2013. See at: www.eupha.org/site/upcoming_conference.php

Gabriele Berg-Beckhoff 2013

eupha konference

I november 2012 afholdtes den 5. fælles EPH konference på det skønne og solrige Malta. Konferencen var en sammenlægning af 'the 20th annual EUPHA meeting' og 'the 34th annual ASPHER meeting'. Flere end 1.200 deltagere havde meldt sin ankomst til konferencen. Ikke færre end 802 abstracts fra 56 forskellige lande og 75 workshops udgjorde en enestående platform for informations- og meningsudveksling mellem forskere, beslutningstagere og praktiserende inden for forskning i folkesundhed & sundhedsvæsenet samt inden for træning og uddannelse i folkesundhed i Europa.

Forskningsenheden for Sundhedsfremme bidrog med en række forskellige videnskabelige aktiviteter. Udfærdigelse af adskillige posters, fremlæggelse af mundtlige præsentationer, ledelse af møder samt ledelse og organisering af gruppearbejde. Videnskabsfolk fra en række lande (Canada, Finland, Italien, Holland og Danmark) præsenterede f.eks. hver især de udfordringer, som er forbundet med analyse af politikker omkring fysisk aktivitet i deres eget land. De arbejder sammen på det internationale EU projekt EUPOPA, som ledes af Arja R. Aro, SDU. Gabriel Gulis, SDU og Rainer Fehr, University of Bielefeld, som leder den nylig etablerede EUPHA enhed af HIA (Health Impact Assessment) med 137 medlemmer, afholdt to workshops omkring samspillet ved brug af flere forskellige sundhedskonsekvensvurderingsteknikker.

Temaet for den næste europæiske EPH konference bliver 'Sundhed i Europa – er vi, hvor vi skal være? Lad os tage ved lære af fortiden, når vi opbygger fremtiden. Konferencen finder sted i Bruxelles, Belgien i november 2013 www.eupha.org/site/upcoming_conference.php.

european congress

in epidemiology. porto, september 5th-8th 2012

In September 2012 the European Congress of Epidemiology took place in Porto, Portugal, organized by the European Federation of the International Epidemiological Association (IEA). The title of the congress was "Epidemiology for a fair and healthy society". Approximately 500 epidemiologists from primarily Europe, but also Brazil, USA and some Asian countries participated in the congress. It was an interesting program with diverse topics. The Unit for Health Promotion

Research was present in the area of social epidemiology and cancer epidemiology. There were sessions and meetings in all areas of epidemiology and public health, which gave a lot of inspiration to future work. Of particular interest were some thematic sessions with a focus on how to learn from other European countries in perinatal epidemiology and how to combine information from several birth cohorts across countries. One key note lecture held by Alfredo Morabia from the Columbia Mailman School of Public Health should in particular be mentioned. He talked about the history of the science in epidemiology. It was an exciting talk and he convinced the audience that we should celebrate the 350th anniversary of Epidemiology this year.

The next European congress in Epidemiology takes place in Aarhus in August 2013. See at: www.euroepi2013.org/index.php?id=58

Gabriele Berg-Beckhoff and Julie Werenberg Dreier

europæisk kongres

EuroEpi (European Congress of Epidemiology) fandt sted i september måned i Porto, Portugal. 500 epidemiologer fra primært Europa, men også Brasilien, USA og Asien, deltog i kongressen. Der var sammensat et alsidigt og spændende konferenceprogram. Forskningsenheden for Sundhedsfremme var repræsenteret inden for området social epidemiologi og kræft epidemiologi.

Den næste kongres afholdes i august måned 2013 i Aarhus www.euroepi2013.org/index.php?id=58.

sdu programme

at pnu, saudi arabia kicked off with 63 students

In the previous HPR NEWS issues we have described our preparatory visits to Princess Nora Bint Abdul Rahman University (PNU), Riyadh, Saudi Arabia. Now, on the 26th of January, 63 female students started their study at PNU in the SDU-run Bachelor programme, which was recently officially accepted by the Ministry of Higher Education of Saudi Arabia. The programme, which is based on the SDU BSc in Public Health, actually consists of two programmes: 'Health Education and Promotion' and 'Epidemiology'. One and half years of the programmes are taught together, after which National Institute of Public Health (SIF) will join the staff of the Unit to teach the rest of the three years in the Epidemiology programme.

Photo 5 Anne Nistrup Hansen (left) and Eva Ladekjær Larsen enjoying their lunch break at PNU

PNU is a university for females only and the largest of its kind in the world. The study programmes are part of the newly established Faculty of Rehabilitation and Health Sciences which all together hosts 11 programmes. Naturally now in the beginning it is a busy period when administration, teaching, IT service, HR service, library service, and students' facilities are being established. It is also an honourable and important process to be part of. We can educate young women to strengthen their participation in developing Saudi society and we can help them to improve health of the Saudi population and make the Saudi society a health-enhancing society.

The very first SDU team launching the programme and teaching in it consists of the Unit Head, Professor Arja R Aro, Assistant Professor Eva Ladekjær Larsen, and two teaching assistants Anne Nistrup Hansen and Oluwatoyin Adeyemo.

The next issue of HPR News will contain news, experiences and perspectives of the teaching collaboration between SDU and PNU. Moreover, there will be texts about everyday life experienced by SDU staff, describing perspectives of Saudi culture, gender segregation, local food and how it is to be a foreigner in the Saudi society.

Eva Ladekjær Larsen and Arja R Aro.

63 kvindelige studerende netop påbegyndt sdu bachelor uddannelse på pnu saudi arabien

Så kom endelig dagen, hvor SDU sparkede bachelor-programmet i folkesundhed i gang, hvor hele 63 håbefulde og ambitiøse kvinder mødte op i spænding. Hele næste nummer af nyhedsbrevet er reserveret til artikler, der handler om de første erfaringer i samarbejdet mellem SDU og PNU. Du kan også læse om det første hold undervisere og deres indtryk af det saudiske samfund og kultur.

new employee

Leena Eklund Karlsson was appointed as a Senior Research Fellow the Unit 1 January 2013. Here she teaches in the Bachelor and Masters programmes which the Unit coordinates and will participate also in the teaching in the Princess Noora University in Saudi Arabia together with other colleagues from the SDU. She is also an active member of the Nordic Health Promotion Research Network, managed by the Nordic School of Public Health (NHV) in Gothenburg. She participates in a research project on equity/equality policies in the Nordic countries. Leena Eklund Karlsson has a PhD in Public Health Science and was previously Associate Professor in the same subject at the University West, Trollhättan, Sweden. Her research concerns how various population groups can be responsible for improving their own health. Empowerment and work-integrated learning are key concepts in her research.

Photo 6 Senior Research Fellow Leena Eklund Karlsson

Leena Eklund defended her doctoral thesis in Public Health in 1999 (From Citizen Participation Towards Community Empowerment) at the University of Tampere in Finland. It analysed an empowerment process in which inhabitants from the Finnish towns Somero and Jarvenpaa learned to participate in local health policy making. Prior to University West, Leena Eklund Karlsson was employed as a teacher at the Nordic School of Public Health (NHV) in Gothenburg (1994-2001). Her work consisted of establishing Master programmes in Public Health in the Baltic area. During the years 2001-2006 she worked at the World Health Organization Regional Office for Europe in Copenhagen. Leena Eklund's task was, above all, to serve European policy makers with providing them timely and relevant evidence on various policy issues in the field of Public health.

Arja R. Aro

ny ansat

Første Januar 2013 tiltrådte Leena Eklund Karlsson som seniorforsker hos Sundhedsfremme. Her skal hun bl.a. undervise folkesundhedsvidenskabsstuderende både i Danmark og på PNU, Saudi Arabien. Aktuelt er hun involveret i et projekt om retfærdigheds/ligestillingspolitik i de Nordiske lande. Primært omhandler hendes forskning, hvordan forskellige grupper kan tage ansvar for at forbedre deres eget helbred, hvorfor 'empowerment' bl.a. er omdrejningspunkt for hendes forskning. Leena har en ph.d. i folkesundhedsvidenskab, hvilken hun forsvarede ved Tampere Universitet, Finland i 1999. Efterfølgende har hun arbejdet indenfor sit fagområde på Universitet West, Sverige og senere har hun bl.a. været ansat hos WHO, København, hvor hun havde til opgave at formidle relevant evidens indenfor folkesundhed til europæiske politikere.

future events

kommende events

Research seminar program spring 2013

20th March, 12.00-13.00. PhD seminar. Meeting room 2:

> "Towards zero vision – The possibilities and challenges for accident prevention in the Danish oil and gas industry"
>
> by PhD student Hanna Barbara Rasmussen, CMSS

In this presentation reasons for the constant frequency of work incidents within Danish oil and gas industry will be discussed. The main aim of this discussion is to explore the possibilities and challenges for accident prevention and the discussion is based on the following three questions:

- How do organisations within the Danish oil and gas industry prioritise and organize safety?
- How do organisations within the Danish oil and gas industry learn from their experience?
- How are risk perception and attitudes regarding safety distributed among Danish and Norwegian offshore employees?

16th April, 12.00-14.00. Joint Campus Event. Auditorium:

> "Quality of life, job satisfaction and well-being in everyday life - how we become better at living life?"
>
> by Chris MacDonald.

During his lecture Chris will discuss wellbeing, happiness and joy of life. Along this discussion Chris will also challenge our mindset. We have a tendency think "I MUST do this and that" – what happens if we instead use a phrasing like "I'm ALLOWED to – FREE to – do this and that"? With this point of departure Chris inspires us to see our life in another perspective; a perspective that among others allow us to enjoy our everyday life. Experience a lecture full of humour and joy of life and meet a speaker full of energy and get inspired to inspire yourself and others - at work, as an organization and as a private person.

29th May, 12.00-13.00. Research Seminar. Auditorium.

"Early origins of diseases – The Danish National Birth Cohort"

by Professor Anne Marie Nybo Andersen, Københavns Universitet.

In epidemiological research it is well known that the time from conception to early childhood has importance for health conditions that reach into later stages of life. Recent research supports this view, and diseases such as cardiovascular morbidity, cancer, mental illnesses, asthma, and allergy may all have component causes that act early in life. Exposures in this period, which influence fetal growth, cell divisions, and organ functioning, may have long-lasting impact on health and disease susceptibility. To investigate these issues the Danish National Birth Cohort (Better health for mother and child) was established as a large cohort of pregnant women with long-term follow-up of the offspring. A prospective design was necessary, because many of the exposures of interest cannot be reconstructed with sufficient validity back in time. Approximately 100.000 women were recruited in the period from 1996 to 2002 and now the 11-year follow-up is currently ongoing. The Nordic countries are better suited for this kind of research than most other countries because of their population-based registers on diseases, demography and social conditions, linkable at the individual level by means of the unique ID-number given to all citizens. Today more than 240 scientific articles have been published using the data from the birth cohort, addressing a wide variety of topics within public health

June 26th, 12.00-13.00. PhD seminar. Meeting room 2.

"Use of evidence and intersectoral collaboration in local public health work"

by PhD student Maja Larsen, Unit of Health Promotion Research.

In this presentation, results from the analysis of the use of evidence and a related working method (intersectoral collaboration) in local public health work in Denmark will be presented. The presentation takes starting point in three interlinked studies aiming at:

- Investigating how and on which level evidence is used in policy processes related to local public health work in Denmark
- Building up evidence on intersectoral action for health at local government level through identifying challenges and facilitating factors in collaboration between sectors when developing and implementing an intersectoral health policy in Varde, Denmark
- Developing a set of criteria for assessing types of public health interventions in Danish municipalities and testing it on a selected municipality. Analyzing the use of knowledge and

inclusion of stakeholders in three different types of public health interventions at local government level in Denmark.

Presentations are held at SDU Campus Esbjerg, Niels Bohrs Vej 9. Please follow the Unit website for the topics and speakers, but mark the date for the upcomming seminar; 20th of March, in your calendars already now. For more information about the program and speakers www.sdu.dk/healthpromotion

next publication

næste udgave

The next HPR News will be circulated in June 2013. Please forward contributions to Stella at skraemer@health.sdu.dk before the 15th of May 2013.

Det næste HPR News vil blive sendt ud juni 2013. Fremsend venligst indlæg til Stella på skraemer@health.sdu.dk før d. 15. maj 2013.