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## Health education and prevention

Rapporteur's report of the workshop

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# Health education and prevention

Rapporteur's report of the workshop

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## The workshop series on public health

A working group commissioned by the German National Academy of Sciences Leopoldina, the Union of the German Academies of Sciences and Humanities, and acatech – the German Academy of Science and Engineering prepared a statement on public health. Prior to setting up the working group, the three academies explored this diverse field through a series of workshops that started in March 2013 and continued in June 2013 and October 2013. The workshop topics were set by a planning group of Leopoldina's Presidium with participation of the Standing Committee of the National Academy of Sciences Leopoldina. Each workshop covered one of seven topics (see below). The workshops were designed to bring together the latest facts and knowledge on each topic. Each workshop brought together the expertise and views of experts from Germany and abroad.

Topics	Coordinators	Date
History of public health in Germany and abroad	Alfons Labisch (Düsseldorf) Ilona Kickbusch (Geneva)	16 March 2013
Living conditions, social and psychological determinants of health and epidemiology – addressing the challenges of establishing causality and making evidence-based public health recommendations	Axel Börsch-Supan (München) Peter Goldblatt (London)	19 June 2013
Public health genomics	Peter Propping (Bonn) Martina Cornel (Amsterdam)	9 March 2013
Public health workforce – academic and non-academic	Bernt-Peter Robra (Magdeburg) Antoine Flahault (Geneva)	15 March 2013
Health education and prevention	Uwe Koch-Gromus (Hamburg) Hans-Peter Zenner (Tübingen) Jean-Francois Bach (Paris)	21 March 2013
Infection epidemiology	Jörg Hacker (Halle) Jos van der Meer (Nijmegen)	20 June 2013
Public health: national and global strategies	Detlev Ganten (Berlin)	23 October 2013

## Objectives of this workshop and the report

The workshop objective was to analyse the importance of health education and prevention for public health in Germany and abroad. Based on sound scientific and historical analysis, arguments were developed that support the establishment of a strong public health movement, which aims at supporting health education and prevention in the current situation of social change.

The report documents the presentation and discussion at the Workshop on 21 March 2013. For the reader to be able to follow the lines chain of reasoning, it was aimed to stay close with the spoken words and to document also the variety of suggestions that were made, even if they are contradictory.

## Executive Summary

*“Health promotion is the process of enabling people to increase control over, and to improve, their health. To reach a state of complete physical, mental and social well-being, an individual or group must be able to identify and to realize aspirations, to satisfy needs, and to change or cope with the environment. Health is, therefore, seen as a resource for everyday life, not the objective of living. Health is a positive concept emphasizing social and personal resources, as well as physical capacities. Therefore, health promotion is not just the responsibility of the health sector, but goes beyond healthy life-styles to well-being.” (Milestones in health promotion - statements from global conferences, 2009)*

Health care systems are focusing their attention on three key functions – reducing costs, improving health outcomes, and enhancing patient satisfaction – and increasingly will value and reward clinicians who focus on these functions. Because attention to health promotion and disease prevention can contribute greatly to all three functions, it will be essential for clinicians to be skilled at helping patients maximise their health and prevent illness. In the new systems, disease treatment obviously will remain an important goal; however, financial viability will depend as well on investments in prevention. Promoting health is essential in primary care, but secondary and tertiary care are also focusing more on wellness and function in the context of living with chronic disease. Disease management strategies attempt to improve quality of life and decrease morbidity and costs of care.

The health benefits of incorporating prevention in practice have become more apparent in the last several decades. Immunisation has made infectious diseases such as polio, rubella, and pertussis rare, and early detection of diseases such as hypertension and cervical cancer has led to dramatic decreases in mortality and morbidity. Helping patients change personal health behaviours may be the next major challenge for clinicians, as it is becoming more evident that certain behaviours are linked to many leading causes of death and disability, such as heart disease, cancer, chronic obstructive pulmonary disease, osteoporosis, diabetes, and sexually transmitted illnesses.

While clinical prevention activities traditionally have been directed at the individual patient, interventions aimed at clinical and community populations are becoming more important. Population-based care, which encompasses

the concepts and methods of epidemiology and public health, is essential to effective management of health care. As clinicians become responsible for helping to maintain the health of a defined population, they will have to attend not only to those patients who appear in the clinic or office, but also to those people who do not appear.

When it comes to intervention strategies in health promotion and prevention there are differences and convergences. The difference is that health promotion means enabling people to look at protective factors, resources, and the associated context, while finding tools to access education. The personal status of people is relevant here, including living conditions, personal situations, knowledge, skills, and professional and social behaviour. The other focus is on prevention, where we primarily look at risks, especially in a social context, where personal knowledge and skills are of much more relevance than in the field of health promotion. The focus of health promotion is on the enabling track, with fluent transitions that are of special relevance for international strategies and communication strategies. Much of the success therefore relies on the message design, and the primary questions of what we are going to do, which areas we need to be active in, and where our focus lies.

Another issue we should keep at the forefront is how we deal with chronic diseases, since there is a huge prevention potential when it comes to issues such as smoking, alcohol abuse, malnutrition, insufficient physical activity, which in return has positive effects on productivity, growth and employment. This type of preventive care not only leads to an improvement in the lifestyle of the target population, but in the quality of medical services as well. Finding easy answers is so difficult because of the separation between primary prevention, on the one hand, and secondary and tertiary prevention, on the other hand. As primary prevention includes less medical treatment than the other two forms of prevention, the calculations that are done on the basis of the cost-of-illness studies show results, reaching from higher expenditures through prevention programs to lower costs of other programs. The avoidance of indirect costs is so far less important than the containment of direct costs (expenditures). We therefore might be saving at the wrong end.

The ultimate goal should therefore be a preventively oriented society that has a focus upon adding additional healthy life years. The central approach for the future that we could embrace is the Health Impact Assessment (HIA). What do we mean with HIA? An HIA is a type of study that helps policy-makers to identify the likely health impacts of a decision in other fields—such as building a major roadway, planning for a city's growth, or developing a school curriculum. HIAs can help decision-makers to identify unintended health risks, reduce unnecessary costs, find practical solutions and leverage

opportunities to improve the well-being of the community in which the project or policy is proposed (macro allocation).

On the topic of access and accessibility, when it comes to specific target groups the aim is to improve behavioural and structural interventions in order to have better health outcomes that are tailored towards predisposing factors. When trying to reach target groups and shaping accessibility the previous focus of interventions has been on barriers and facilitating factors, while developing strategies which involve peers and others who can serve as mediators. The design of many programmes often does not consider gender-issues and cultural sensitivity, even though this can increase response-rates. Even though most projects do assess accessibility, it is rather rare that a connection is made between health-related outcomes where participation in the intervention process is seen as an indicator for effectiveness.

When it comes to the sustainability and the dissemination and diffusion of knowledge, the communication of different benefits (health, economic, structural) is crucial. We need a framework for the dissemination of results, and knowledge about cases when evidence-based politics succeeds. When it comes to the implementation and application, we can see that many programmes have been evaluated, but we need answers to the questions of which components are effective, which adaptations are necessary and appropriate for transfer to other contexts, and which structural requirements are essential in practice. On the topic of sustainability we need funding to analyse long-term effectiveness.

For future needs, the development and expansion of interdisciplinary research structures is needed, in order to ensure the further selective and sustainable growth of research on primary prevention and health promotion. Cooperation between research and practice is needed in order to achieve a sustainable development profile. This also requires the inclusion of previously neglected disciplines (e.g. political science, communications).

# 1 Welcome and introduction

## Detlev Ganten

It is a great pleasure to welcome you to this workshop series on health and education. We have already had a year of open discussions on public health within the confines of the group planning this workshop series and beyond, trying to figure out where we are and where we want to go in public health. The Leopoldina considers public health to be of great importance, which is why we have chosen to host this workshop. This and six other scientific workshops should serve as fact-finding missions that guide us in where we want to go in public health. Education serves as the best vaccination and tool for prevention, and is therefore one of the most important workshops in this series.

## 2 Health economic benefits

### Klaus-Dirk Henke

First off, let us lay out the main outline and summary of this presentation, which will focus upon the health economic benefits in a health care system with a consistently preventive orientation:

- The economic benefits of the German health economy are known.
- The health benefits of the German health economy are unknown, meaning that we have no ideal quota of a certain percentage to evaluate what falls under best practice.
- Does preventive care save money? Selected empirical studies show mixed results.
- Health impact assessment as a new challenge, we need not just to look at health, but issues of science, education and other tertiary factors.
- A preventively oriented society: More healthy life years through morbidity compression, for example, the EU wants to raise the additional amount of life-years by 2020, i.e. morbidity compression.
- Towards an open health society: A new understanding of healthcare.

When looking at the economic benefit of the health economy we can take the traditional view, which looks at health expenditures in percent of GDP and per capita. This input data and the related figures are easily available, e.g. from WHO statistics, and facile to work with.

A new view on health accounting is based on so-called satellite accounts, which try to calculate figures that are not available in the general accounting systems which are taken into account (Henke u. a., 2010).

### The four consumption sectors in the health economy in real terms

		Compulsory and voluntary financing	
		Compulsory coverage through private or statutory health insurance	Voluntary coverage through out-of-pocket expenditures and voluntary insurance
		Primary "market"	Secondary market
Health products and services	Core health sector	e.g. reimbursable in- and outpatient services, drugs	e.g. OTC drugs, individual health care services
	Extended health sector	e.g. instrumental assisted daily living (IADL), activity, research, vocational training	e.g. „healthy“ spas, relaxation, food, clothing

Henke et al. (2010)

When looking at the basic figures of the German health economy from 2005 to 2009 and use some basic extrapolation methods you come to the following results.

### Basic figures of the German health economy from 2005 to 2009

(billion EUR)	2005	2006	2007	2008 <sup>1)</sup>	2009 <sup>1)</sup>
<b>Total output of goods &amp; services</b>	373.9	392.6	412.6	428.3	434.3
Share of overall economy	7.8%	7.7%	7.6%	7.7%	8.6%
<b>Imports</b>	46.8	53.6	59.3	60.8	61.3
Share of overall economy	12.5%	13.6%	14.4%	14.2%	14.1%
<b>Production value</b>	327.1	339.1	353.3	367.5	373.0
Share of overall economy	8.1%	7.9%	7.9%	8.0%	8.8%
<b>Bought- in goods &amp; services</b>	123.9	130.3	138.7	143.8	143.5
Share of overall economy	6.1%	6.0%	6.0%	6.0%	6.8%
<b>Gross value added</b>	203.2	208.8	214.6	223.7	229.4
Share of overall economy	10.0%	10.0%	9.9%	10.1%	10.7%
<b>Total output of goods &amp; services</b>	373.9	392.6	412.6	428.3	434.3
Share of overall economy	7.8%	7.7%	7.6%	7.7%	8.6%
<b>Consumption expenditures</b>	273.5	281.3	289.4	299.3	310.8
Share of overall economy	17.3%	17.4%	17.8%	17.9%	18.3%
<b>* Primary "market"</b>	221.2	225.8	232.5	241.3	251.3
Share of overall economy	14.0%	14.0%	13.3%	14.4%	14.8%
<b>*Secondary market</b>	52.3	55.5	48.7	53.2	59.5
Share of overall economy	3.3%	3.4%	3.5%	3.5%	3.5%
<b>Exports</b>	54.8	63.8	71.5	72.8	69.5
Share of overall economy	6.1%	6.2%	6.4%	6.3%	7.3%
<b>Intermediate use</b>	41.6	45.7	48.7	53.2	51.6
Share of overall economy	11.1%	11.6%	11.8%	12.4%	12.5%

<sup>1)</sup>Extrapolation methods have been used

Ostwald, Henke, Kim et. al (2014, p71)

What does the old view based on expenditures and the new multi-factorial view (value added, export, consumption, employment, etc.) tell us about the health economic benefits? The basic answer is: not much. There is

neither an optimal quota of health expenditures in GNP, nor an optimal structure known on the basis of where the scarce resources should be allocated within competing ends education, health, environmental policy, etc., or even within the health care sector (prevention, acute services, rehabilitation, etc.) (Henke, 2009).

When we look at the economics of prevention on the basis of the question whether preventive care saves money, empirical studies show mixed results. The following table summarises the results of studies by van Dongen et al., (2011), Chapman (2012) and Cohen, Neumann, & Weinstein (2008).

### Selected empirical results of the economics of prevention

	van Dongen et al. (2011)	Chapman (2012)	Cohen et al. (2008)
<b>Background</b>	An imbalance between energy intake (nutrition) and output (physical activity) among the population has led to an increased prevalence of overweight, obesity and attributable diseases. → Consequence: Substantial economic burden in terms of healthcare costs and lost productivity Therefore: Implementing worksite health promotion programmes (WHP)	The summary evidence in this 2012 meta-evaluation update provides a systematic look at the quality on the financial impact of workplace health promotion programmes	Some U.S. politicians claim that there are opportunities to save money and improve health by means of prevention
<b>Method</b>	Three metrics (net benefit, benefit cost ratio (BCR), return on investment (ROI)) Extracted data from 18 published studies	Meta-Evaluation Approach: The methodology involves a systematic review of the studies using a standardised set of seven design and methodological criteria with certain scoring rules.	Cost-effectiveness analysis of 599 research articles. Each article estimates the cost-effectiveness of one or more interventions as the incremental costs divided by the incremental health benefits quantified in terms of quality-adjusted life-years (QALY)
<b>Results</b>	On average, the financial return in terms of absenteeism benefits, medical benefits or both were positive during the first years after implementation.	Average reductions in sick leave, health plan costs and workers' compensation and disability insurance costs of around 25%. <i>„Worksite health promotion represents one of the most effective strategies for reducing medical costs and absenteeism“.</i>	The distribution of cost-effectiveness ratios for preventive measures and treatments are very similar. Opportunities for efficient investment in health care programs are roughly equal for prevention and treatment.

Cohen, Neumann, and Weinstein (2008) analyse the claims in the 2008 US presidential campaign that there are opportunities to save money and improve health by means of prevention. For this purpose they analyse 599 research articles, which estimate the cost-effectiveness of one or more interventions as the incremental costs divided by the incremental health benefits quantified in terms of quality-adjusted life-years (QALY). They find that the distribution of cost-effectiveness ratios for preventive measures and treat-

ments are very similar. Opportunities for efficient investment in health care programmes are roughly equal for prevention and treatment. Moreover, 20 % of the preventive and treatment options fall into the cost-savings category, while 80 % add more to costs than they save (Cohen u. a., 2008; Russell, 2009). Examples are given in the following table.

**Cost-effectiveness of selected preventive measures and treatments for existing conditions**

Intervention	Cost-effectiveness ratio
Preventive measures:	
- One-time colonoscopy screening for colorectal cancer in men 60-64 years old	Cost-saving
- Intensive tobacco-use prevention programme for seventh- and eighth-graders	\$23,000/QALY
- Antibiotic prophylaxis (amoxicillin) for children with moderate cardiac lesions who are undergoing urinary catheterisation	Increases cost and worsens health
Treatments for existing conditions:	
- Cognitive-behavioural family intervention for patients with Alzheimer's disease	Cost-saving
- Liver transplantation in patients with primary sclerosing cholangitis	\$41,000/QALY
- Surgery in 70-year-old men with a new diagnosis of prostate cancer, as compared with watchful waiting	Increases cost and worsens health

Cohen, Neumann, & Weinstein (2008)

Another issue we should keep at the forefront here is how we deal with chronic diseases. There is a huge prevention potential when it comes to issues such as smoking, alcohol abuse, malnutrition, and insufficient physical activity, which in return has positive effects on productivity, growth and employment. This type of preventive care does not only lead to an improvement in the lifestyle of the target population, but in the quality of medical services as well. On the basis of this assumption, there is a clear cost decrease over a time span of 20 years (Martin & Henke, 2008).

Comparing the medical costs per inhabitant in Germany with and without prevention over a life span of 85 years, it can be clearly observed that prevention pays. Despite of higher costs with prevention in the early age groups (<15 years and 15-30 years), the difference of medical costs with and without prevention increases with lifetime. In fact, with prevention, medical costs of the age group 85+ are about the same than medical costs of the age group 65-85 without prevention (Martin & Henke, 2008).

So what is the overall summary that we can make when it comes to the question of whether preventive care saves money? The answer is difficult because of the separation between primary prevention, on the one hand, and secondary and tertiary prevention, on the other. Primary prevention includes

less medical treatment than the other two forms of prevention and the calculations that are done on the basis of the cost-of-illness studies show results that are reaching from higher expenditures through prevention programmes to lower costs of other programmes. The avoidance of indirect costs is so far less important than the containment of direct costs (expenditures). We are saving at the wrong end.

We therefore require new approaches that lead us from the traditional healthcare system to one, which has a consistently preventive orientation. In this system more emphasis will be put on individual lifestyle prevention (behavioural prevention), social/collective prevention (setting approaches), and health impact assessment. The latter should be embraced as the central approach for the future.

In a society oriented towards prevention, “additional healthy life years” should be the ultimate goal. This is based on three hypotheses:

- Healthy aging raises productivity and thus gives a supply-side boost to quality of life and growth
- Healthy aging gives a demand-side boost by increasing private demand for non-reimbursable health-related goods and services (second health market)
- A healthier society saves money on treatment, rehabilitation and nursing care and thus stabilises expenditures
- We therefore need a new understanding of health care that leads us towards an open health society:

#### **Towards an open health society**

<b>New Understanding</b>	<b>Old understanding</b>
Quality and outcome	Input orientation
Second health market; new methods of paying providers	Public financing; traditional payment methods
Containment of indirect cost	Containment of direct cost
Increasing workforce; new career opportunities; health economy	Health care as a cost factor
Health as investment	Health as consumption
Lifelong prevention in all areas of life	Fragmentation, e.g. the statutory health insurance

## Discussion

- The question is how much money we would have to invest in order to get significant results from prevention strategies? If we are able to cut and/or avoid indirect costs then it seems like prevention strategies can be successful, especially when it comes to issues such as healthy aging. We need to view this from two sides. There are not only the extra years of productivity, which would be available of importance, but we also need to think about what an extra ten years of pensions would cost.
- How much money we would have to spend overall is in many ways an unanswerable question. We would have to go from branch to branch, and then think about how to define the amount of expenditure for prevention within those sectors, and how these relate to the statutory health funding budget. We should definitely set a priority around the question of indirect costs and make sure that they are discussed first. Then we would proceed through the different branches and see where we can cut indirect costs, with everything being paid out of taxation. We all dream of healthy life years since these years can bring about higher productivity, but we also need to be aware of the difficulties in creating these increased healthy life years.
- A factor that we need to think about in health-economics is to develop an appreciation for the efficacy of prevention. There seems to be a gap between what people are expecting and the timespan required to show real results. Let's look at the example of rheumatic fever, which is still a common disease in many countries. When we are speaking of prevention costs compared to medical cost we see that the eradication of this disease is not that complicated. It is primarily associated with education, with secondary prevention being more important than primary prevention. Health authorities on the other hand are not convinced about results that you will first see in 5 years, which we saw during work on a French-Caribbean island. There were 40 to 60 communities, and in 5 years we had total disappearance despite the resistance of the health ministers.
- We should also pose the general question whether there are any effects of health promotion when it comes to preventive measures. What we have seen is that health promotion can promote health and its subsequent effects under certain conditions. The first problem is that there is a lack of knowledge on the circumstantial conditions. The second problem is that we need to take into account whether we are considering the right target

group, and thirdly, if we complete health promotion measures at a high quality level there is often a fragmentary implementation and a heterogeneous application.

- When talking about efficiency and efficacy we need to go back to data and analyse all the input figures in order to see the effects of the health economy. Then, we need to figure out the target groups. After that, the head authority to work together with should be identified, and whether this authority is at a local basis or on a federal level. The question remains who should be in charge of providing analytic services and impact assessment. Who is in charge and should be in charge of prevention?
- To establish a prevention society it will be necessary to show that additional life years will actually materialise and that morbidity will be compressed.
- As for the curve on functional capacity over the life course, this is didactically very valuable. In today's prevention efforts we do not make full use of what is possible. Taking the example of cognitive function, all three parameters of the curve (curvature, slope, and tipping points) have been changed and improved. It would hence be worthwhile to produce different versions of the curve for different situations. It is crucial to move into health promotion without thinking about illness. This aspect has so far hardly been introduced into prevention. Moreover, costs of supplies and needs which should be differentiated have to be taken into account.

### 3 Target groups with special needs for health promotion

#### Thomas Ziese

The aims of health monitoring are:

- Surveillance of development in health status, health behaviour and health risks in the general population or specific population groups,
- Identification of recent trends and their changes,
- Evaluation of possible interventions and prevention measures,
- Contribution to needs assessment and planning in the health care system.

In order to practice health monitoring there are several parts of crucial information that we need to link in order to gain a complete understanding:

- Notifiable diseases
- SOEP
- Registries
- Sentinels
- Epidemiological studies
- Administrative data
- Microcensus
- Vital statistics
- Surveys

The advantages of health surveys are that they provide additional information on important aspects of well-being, health, and diseases as well as on health-related attitudes and behaviours:

- Illnesses and disorders
- Quality of life and life style
- Subjective health and health perception
- Personal and social resources of health
- Utilisation of prevention measures and early detection measures (immunisations, screening)

- Utilisation of health care

The Health Monitoring System in Germany consists of three components that receive continuous public funding by the German Ministry of Health and the RKI:

Component 1:

**KiGGS – Studie zur Gesundheit von Kindern und Jugendlichen in Deutschland**

Target Group: Children & Adolescents

Type of Study: Cohort

Data-collection: Base-line data collection – KiGGS 2003-06 – HIS/HES

1<sup>st</sup> wave – KiGGS 1 (2009-12) – HIS (telephone survey)

Component 2:

**DEGS – Studie zur Gesundheit Erwachsener in Deutschland**

Target Group: Adults

Type of Study: Panel

Data-collection: Base-line data collection – BGS 1998 – HIS/HES

1<sup>st</sup> wave – DEGS 1 (2008-11) – HIS/HES

Component 3:

**GEDA – Gesundheit in Deutschland Aktuell**

Target Group: Adults

Type of Study: Cross-sectional

Data-collection: Base-line data collection – GEDA 2008-09 – HIS (telephone survey)

Repeated continuously

Life expectancy at birth is steadily expanding, and the research seems to show that the main reason for this is the compression of morbidity. This compression of morbidity seems to be based on people making healthier choices for themselves. But there are many examples for target groups that are not taking part in this development and would greatly benefit from health promotion, for example:

- Young men with low work qualifications
- Children from poor households
- Young lone mothers
- Street-children
- The elderly
- Handicapped people

- Asylum seekers
- Inhabitants of nursing homes and institutions
- Migrants
- Homeless
- Children of mentally ill or addicted parents
- Chronically ill
- Longtime unemployed
- People in need of care with migration background

So what specific population groups should we be targeting? We chose three age groups, (childhood, middle-aged, elderly) and took factors such as work/unemployment, migration-status and region into account, and then looked at the health dimensions of these groups, specifically:

- General health
- Health behaviour
- Morbidity
- (death)

The important issue we need to keep in mind here is that there will always be a certain amount of disease in the population. The question we need to ask ourselves is where we can see potential for health interventions, who we can reach with these health interventions, and how much we can affect differences within a certain group. When we look at self-reported health by children according to socio-economic status (SES) we can see that SES-related issues (income, education, social position) play a large role in how children report their own health status, which should give us a clear target for where we should implement health interventions based on health promotion. The importance of SES can also be seen when we look the numbers for smoking and passive smoking age 11-17 by age and sex as shown in the presentation.

Social status is a consistent indicator for differences in health in children and adolescents aged 3-17, with mental and behaviour deviation being almost 4 times higher percentage-wise for children and adolescents from a low social status, and in general there is a strong social gradient in health for children:

**Differences in Health in Children and Adolescents aged 3-17 years by social status**

	Age	Odds ratio
Limitation in general health	3-17	1.87
Mental and behaviour deviation	3-17	3.83
Obesity	3-17	3.05
Signs of eating disorders	11-17	1.93
ADHS	3-17	2.27
Physical inactivity	3-10	3.49
Smoking	11-17	2.42
Exposure to cigarette smoke	11-17	3.33
Consumption of fruit and vegetables	3-17	2.03

Data basis: KiGGS 2003-2006 (Lampert, Hagen, & Heizmann, 2010)

The same can be observed in smokers. Low social status is a critical component of why people smoke, which should be attacked through health interventions based on health promotion. There are also other risk factors for health which we need to take into account when it comes to issues of SES, the main ones being obesity, lack of exercise and tobacco use.

Since we have looked at risk factors the next step is to look at diseases, where we can see a markedly higher risk of contracting certain diseases (lifetime prevalence) in 45-year-olds and older women and men from the low-income group relative to the high-income group, diseases that are mostly preventable (GEDA 2009)<sup>1</sup>:

**Risk of contracting certain diseases (lifetime prevalence) in 45-year-old and older women and men from the low-income group relative to the high-income group (GEDA study 2009)**

Risk of disease	Women	Men
markedly higher (OR ≥ 2.00)	Heart attack	Heart attack
	Stroke	Stroke
	Chronic liver disease	Chronic liver disease
	Angina pectoris	Chronic bronchitis
	Diabetes mellitus	Osteoporosis
higher (OR < 2.00)	Hypertension	Hypertension
	High level of blood lipids / cholesterol	Angina pectoris
	Chronic bronchitis	Cardiac insufficiency
	Bronchial asthma	Diabetes mellitus
	Osteoarthritis	Chronic renal insufficiency
	Osteoporosis	Arthritis
	Depression	Depression

Note: OR = Odds Ratios. A statistically significant relationship is assumed based on an error probability of  $p < 0.05$ .

<sup>1</sup> <http://www.geda-studie.de/> (accessed 18 May 2015)

When we examine the patterns of morbidity we can see that disease increases with age, which shows the potential in avoiding disease in the long-term through early health interventions:

#### Patterns of morbidity

Women			
Population 18-49 years		Population 50+ years	
Any musculoskeletal disease	22.4%	Any cardio-metabolic condition	69.2%
Any cardio-metabolic condition	21.2%	Any musculoskeletal disease	56.2%
Depression	7.6%	Any CVD	17.4%
Any lower respiratory disease	7.1%	Cancer	13.9%
Any uppergastric disease	4.8%	Any lower respiratory disease	10.7%
Cancer	3.2%	Any severe sensory limitation	9.7%
Any severe sensory limitation	3.1%	Depression	8.4%
Any CVD	1.7%	Any uppergastric disease	6.2%
Any liver/renal disease	1.1%	Any liver/renal disease	5.3%
Men			
Population 18-49 years		Population 50+ years	
Any cardio-metabolic condition	24.9%	Any cardio-metabolic condition	65.2%
Any musculoskeletal disease	15.8%	Any musculoskeletal disease	38.1%
Any lower respiratory disease	5.2%	Any CVD	23.2%
Depression	3.3%	Cancer	9.9%
Any uppergastric disease	2.5%	Any lower respiratory disease	9.7%
Any severe sensory limitation	2.2%	Any severe sensory limitation	7.9%
Any CVD	2.2%	Depression	5.9%
Cancer	1.7%	Any liver/renal disease	4.3%
Any liver/renal disease	1.1%	Any uppergastric disease	4.2%

Fuchs, Busch, Lange, & Scheidt-Nave (2012)

When we look at the development over time (Data from 1998 and 2007) and look at those suffering from four or more diseases, we can observe the paradox that we, as a population, might be living longer, but at the same time we are also attracting more diseases, which was based on 15 self-reported medical diagnoses: cardiovascular diseases, cancer, diabetes, hypertension, hyperlipidemia, hyperuricemia/gout, asthma, osteoporosis, liver cirrhosis, gastric/duodenal ulcer disease, migraine, M. Parkinson, epilepsy. In conclusion for this section, this shows that when it comes to target groups within the population, all three groups (childhood, middle-aged, elderly) require health interventions and should be targeted.

Another important issue for health is work stress, where there are several differences between work-stress causes for men and women amongst 18 to 64 year old employees, but more importantly, when we look at the difference in employees' subjective feelings in how their health is affected by their work, we can see big differences depending upon employment status (full-time, part-time, marginal employment).

We must also look at those groups which are not in the workforce; of course there is a burden of disease caused by work, but negative health can also be caused through unemployment, as the 2010 GEDA-study shows when it comes to the percentage of smokers and heavy smokers by employment status and gender. The 2010 GEDA-study analysed the percentage of smokers and heavy smokers by employment status and gender. Results showed that unemployed people smoke much more frequently and more heavily than those with a job. However, there is no significant difference between people in precarious employment situation and those with a secure employment.

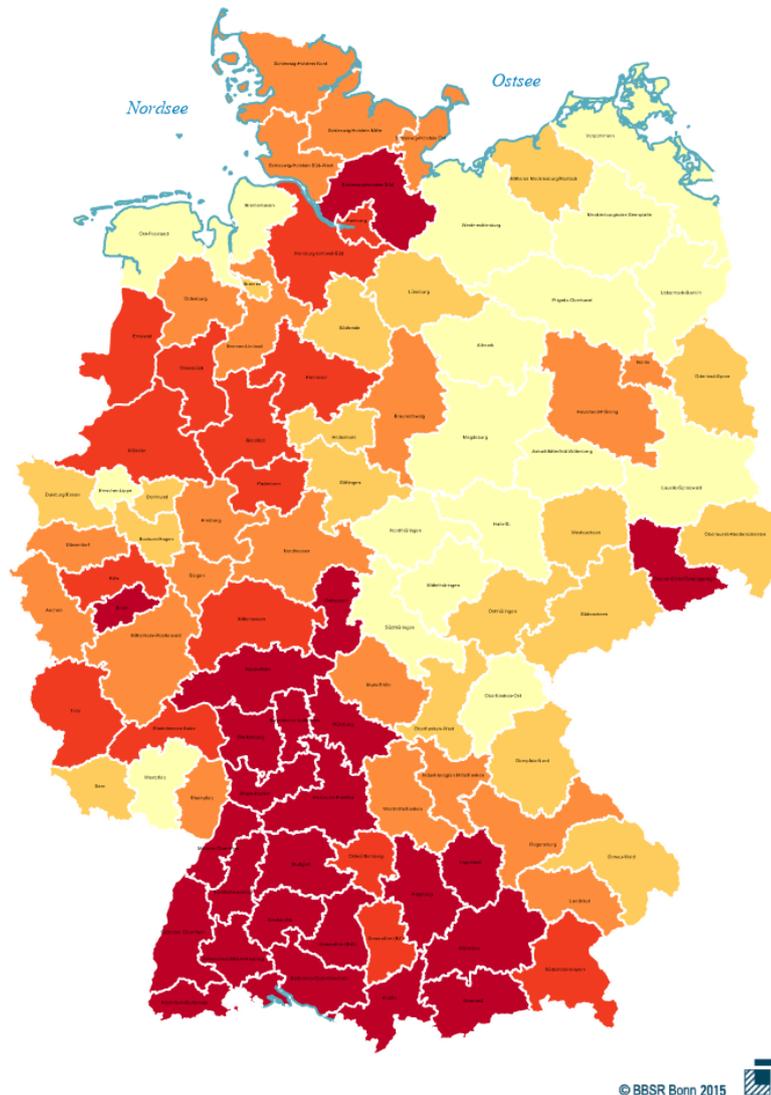
Another issue which should be addressed is migration. 24% of children in Germany have a migration background and even though migrant groups are not homogenous, they often still show higher rates of obesity. (KiGGS 2003-2006<sup>2</sup>, Schenk, Ellert, & Neuhauser (2008)).

While obesity might be a problem amongst the Turkish migrant population, alcohol consumption, as an example, seems to be more of a problem for children coming from the former Soviet Union, which should be taken as evidence that intervention strategies for migrants cannot be based on a homogenous view.

When we look at life expectancy at birth in the different regions in Germany we see huge differences from north to south, with the largest differences at 3-4 years.

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<sup>2</sup> <http://www.kiggs-studie.de/> (accessed 18 May 2015).



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#### Mittlere Lebenserwartung eines männlichen Neugeborenen in Jahren

- bis unter 76,7
- 76,7 ... 77,4
- 77,4 ... 78,1
- 78,1 ... 78,7
- 78,7 und mehr

Raumbezug: Raumordnungsregionen

Zeitbezug: 2010/2011/2012

Datengrundlage: Statistik der Geburten und Sterbefälle des Bundes und der Länder, Eurostat Regio Datenbank (Stichtag 01.01. des jeweiligen Jahres, Italien und Großbritannien 2010)

To give an example for why these differences are so poignant, in cancer therapy half a year of extra life is considered a great success. At the same time we must also consider that when we take a more detailed look at the regions and districts within the “Länder,” that we can still see a pattern, but not as homogenous as it looks at first sight.

When we compare employment rates in different regions with life expectancy, we can see that there is a strong association between the two; there-

fore regions should be a specific target group for interventions. (INKAR 2010).<sup>3</sup>

So what do we do with all of this wealth of information? At the content level there are a few initial conclusions:

- Men and women with low social status are subject to higher, disease and premature mortality risk
- Behavioural risk factors like smoking, sport inactivity and obesity cumulate in the low status groups
- Already in the childhood and adolescence the health inequality is clearly visible to the disadvantage of low status groups
- Reduction of health inequalities constitutes a big challenge for public health and health policy makers
- Evidence for different population groups as target groups for health intervention
- Different dimensions of health intervention potential in different population groups
- Target population depends on the health objective

What we therefore need are options for priority-setting criteria based on:

- Individual relevance
- Societal relevance
- Effectiveness of interventions
- Resources
- Areas of interventions
- Acceptance (society, policy, actors)
- Ethics

For the future, we hope that this can lead to the development of a priority assessment tool, since an intervention in one area will always mean that there will not be resources for intervention in another area.

## Discussion

- SES is one of the biggest problems in health promotion, which has given rise to the “hard core hypothesis,” meaning that even when we are successful in prevention, there might be one group that remains in the population which will not change their behaviour and will be extremely hard to target. The main problem is that there are several topics that could be

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<sup>3</sup> Cf. <http://www.inkar.de/> (accessed 18 May 2015).

confounded with SES, we must therefore make sure that the connection between SES and health status is solid. For example, professionals tend to go to wealthier regions, leading to a “brain drain,” which then leads to even more selection in the different regions.

- We can all agree that the social aspect is very important in addressing and defining health promotion activities on the basis of the “Russian Doll principle.” We have to get more in touch with the actors at the ground-level, since from the top-down in our health sector our ability to act directly is at many times very limited, preventing us from reaching the source of the problem. Most health promotion issues will be layered in different ministries, we therefore always need to keep in mind who the target group is, and who the corresponding actor will be.
- At the moment we do not have the resources to truly tackle groups with low socio-economic status. We would first have to lobby for more funding.
- We have to decide which of the measures we can combine in order to be effective on the basis of achieving a multiplier effect. We also have to keep in mind that not every measure is a good measure in every context, and that normally health interventions are not based on one single measure, but that they require a mix of instruments and measures which need to be combined.
- As already said, the challenge we face is to pick the right combination of strategies since we know that interventions can also deepen the gap. We therefore need to collect those studies in order to avoid a further increase in health inequalities when we practice health interventions.
- When we are talking about the health economy in the different “Länder,” it might also be helpful to compare input and output data in order to get a better understanding.
- We need to keep the issue of selectivity and historical change in mind when we are talking about disparities, it would therefore be necessary to look at embedded interventions, rather than seriously researching what provides incentives for certain behaviours.
- Since there is a big difference between migrant groups we need to make sure to address them in different ways. An effective strategy is to give them additional material so that they can do the counselling themselves. The multiplier effect from learning is much higher if information are

transmitted from someone from their own culture, and if pictures, which are taken from the targeted culture, are used. This is a way to make sure that we can win their confidence so that they involve themselves from their own initiative more and more, since in the end the over-arching goal is also improved integration policies, where health only plays a minor part.

- When we speak of social disparities we are reaching the limits of what education, specifically, what health education can do. We need to focus on the two sides of the “prevention-coin”. One side is the educational approach, the other side is that more research about changing our daily environments is required, i.e. public spaces and the effects they have on our health behaviours. When we look at the biggest effects when it comes to behaviour modification, the premier issue is self-regulation. If this is practiced there is no need for help by external resources; an issue where there has not been enough systematic research done.

## 4 Ethical aspects of prevention

### Georg Marckmann

There are three main ethical issues in prevention:

1. The conflict between individual autonomy versus the public good
2. Issues of distributive justice
3. The Individual responsibility for health

Also of central importance for this topic is the question for appropriate methodological approaches for the ethical evaluation of preventive interventions.

So what is special about prevention and what specific ethical concerns does it raise?

Prevention interventions are aimed at healthy subjects, which is why from an ethical standpoint they require special legitimation. Also, the initiative usually comes from the public health professional, not from the individual. This raises the issue of the potential pervasiveness of preventive interventions, since almost all things in life can have an impact on our health. We must therefore ask ourselves when preventive interventions are of actual use, and must always keep in mind that impacts in health could potentially have negative influences on other aspects of our lives.

Since the focus for preventive interventions is on populations, it potentially provides benefits for some, while being a source of burden and risk for others. This specific situation requires an ethically more “delicate” benefit vs. harm evaluation. Effective prevention often requires behavioural changes, which poses the question to what extent restricting individual autonomy is acceptable to achieve certain prevention goals. Moreover, since the focus is on average population health, the distribution of benefits and harms within the population must be taken into consideration. This assessment is made increasingly difficult because preventive interventions have a long-time horizon, which makes a valid assessment of benefits and harms difficult, and means that decisions are made on the basis of empirical uncertainty.

All of the issues raised should make it clear why an ethical evaluation of preventive interventions is necessary.

The basic ethical conflict of prevention is as follows: Since preventive interventions are designed to reduce morbidity/mortality in populations and therefore require population-wide strategies, an ethical rift exists between the low risk reduction provided for the individual, and the burden/harm that possibly exists for the rest of the unaffected population. Also, the goals of prevention can only be achieved by influencing the individual's autonomy that could ethically be seen as coercive measures. A few examples of this are:

- Legal mandate to fasten seat belts
- Forbidding smoking in public buildings
- Mandatory immunisations (e.g. in the U.S.)

The core ethical issue here is the question of how much restriction of individual autonomy is legitimate in order to achieve certain population-based goals of prevention? The legitimacy of influencing the individual depends on the results of the ethical evaluation of the intervention.

When it comes to the issue of prevention and distributive justice we have to keep in mind that we have limited resources to promote, and that therefore these resources need to be explicitly allocated according to defined procedures and criteria.

There are three levels of allocation decisions:

1. The macro level: How many resources should be devoted to prevention vs. other health issues/programmes?
2. The meso level: Which (sub-)populations should be targeted with a preventive intervention?
3. The micro level: Is equal access provided to individuals in the prevention programme?

At the same time the socioeconomic gradient in health status has to be taken into consideration: health disparities could be reason to give the worst off regarding preventive interventions.

This leads to the issue of how much the individual can and should have a responsibility for their own health, and whether people have a moral obligation to live a healthy life?

We all know that living conditions and socioeconomic status have a strong influence on healthy behaviour, which means that healthy behaviour is not merely a matter of individual choice. Therefore, improving general living and working conditions should have priority. The goal of preventive interventions should be to support and enable individuals in taking personal responsibility for their health, which leads us to the ethical question of what incentives are acceptable to increase the uptake of preventive interventions. For such cases

a systematic public health ethics (PHE) approach could be of valuable service here (Marckmann, Schmidt, Sofaer, & Strech, 2015).

	<b>Normative criterion</b>	<b>Ethical justification</b>
1	<p>Expected health benefits for the target population</p> <ul style="list-style-type: none"> <li>• Range of expected effects (endpoints)</li> <li>• Magnitude and likelihood of each effect</li> <li>• Strength of evidence of each effect</li> <li>• Public health (practical) relevance of effects</li> <li>• Incremental benefit compared to alternative interventions</li> </ul>	Beneficence, Utility (benefit) maximisation
2	<p>Potential harm and burdens</p> <ul style="list-style-type: none"> <li>• Range of potential negative effects (endpoints)</li> <li>• Magnitude and likelihood of each negative effect</li> <li>• Strength of evidence for each negative effect</li> <li>• Public health (practical) relevance of the negative effects</li> <li>• Burdens and harms compared to alternative interventions</li> </ul>	Nonmaleficence
3	<p>Impact on autonomy</p> <ul style="list-style-type: none"> <li>• Health-related empowerment (e.g., improved health literacy)</li> <li>• Respect for individual autonomous choice (e.g., possibility of informed consent, least restrictive means)</li> <li>• Protection of privacy and confidentiality (e.g., data protection)</li> </ul>	Respect for autonomy, Beneficence
4	<p>Impact on equity</p> <ul style="list-style-type: none"> <li>• Access to the public health intervention</li> <li>• Distribution of the intervention's benefits, burdens and risks</li> <li>• Impact on health disparities</li> <li>• Need for compensation?</li> </ul>	Justice
5	<p><i>Expected efficiency</i></p> <ul style="list-style-type: none"> <li>• Incremental cost-benefit/cost-effectiveness ratio</li> <li>• Strength of evidence for expected efficiency</li> </ul>	Utility (benefit) maximisation, justice

Source: Marckmann u. a., (2015) modified.

In addition, the following criteria should be met to guarantee a fair decision process (Marckmann u. a., 2015):

- **Transparency:** Decision process including data base and underlying normative assumptions should be transparent and public
- **Consistency:** Application of the same rules and criteria for implementation of public health programmes  $\Rightarrow$  equal treatments of different populations
- **Justification:** Decisions should be based on relevant reasons (based on the normative criteria for public health ethics)
- **Participation:** Populations affected by the PH-program should be able to participate in the decision about the implementation
- **Minimise conflict of interest:** Decisions about PH-programs should be organised to minimise conflict of interests
- **Open for revision:** Implementations of PH-programs should be open for revision (e.g. if data basis changes or certain aspect have been neglected)
- **Regulation:** Voluntary or legal regulation should guarantee that these criteria for a fair decision process are met

The ethical evaluation of public health programmes then follows the following steps:

	Step	Explanation
1	Description	Thorough characterisation of the PH-programme: goals, methods, target population, etc.
2	Specification	Specification (if necessary) of the normative criteria for PH-programme
3	Evaluation	Step-by-step evaluation of the PH-programme based on each of the normative criteria
4	Synthesis	Overall evaluation of the PH-programme by balancing and integrating the 5 single evaluations of step 3
5	Recommendation	Development of recommendations for the design and implementation of the PH-programme
6	Monitoring	Monitor and re-evaluate the ethical implications in regular time intervals

Source: Marckmann, Schmidt, Sofaer, & Strech (2015)

Depending on the results of the ethical evaluation, different recommendations for the use and implementation of the public health programs are justified:

1. **Advise against** implementing the public health intervention and against financial coverage by the public system.
2. **Offer** the public health intervention without any explicit recommendation; costs might be covered by the public system. The decision about participation is left with the individual

3. **Offer** and **recommend** the public health intervention; pro-active, non-intrusive measures (e.g. information campaigns) are justified to achieve higher participation rates. Costs should be covered by the public system
4. **Offer** and **recommend** the public health intervention; monetary and non-monetary **incentives** are justified to increase participation rates. Costs should be covered by the public system.
5. **Offer, recommend** and **legally enforce** the intervention; non-adherence will have consequences for the individual. Costs should certainly be covered by the public system.

Prevention involves ethical issues. Among them are conflicts between autonomy of the individual and the public good (population-related goals of health improvement), issues of distributive justice and the scope of individual responsibility for health. The ethical implications of prevention should be analysed based on a clearly defined methodological approach and integrated with effectiveness, benefit and risk assessment.

At the same time we also need to assure transparency and quality of the ethical evaluation, and analyse the legitimacy of the preventive intervention.

## Discussion

- The central ethical problem is the individual's freedom to refuse and decline health prevention interventions. The first cost in such a case is that the future development of a disease is not prevented because the person refuses the preventive measure. The other problematic aspect of non-compliance is in the case of transmittable diseases, such as HIV/AIDS, where rapid treatment of contaminated people would lead to a progressive decline of the disease, at least in the case of western countries.
- Autonomy cannot be our highest value; autonomy is one primary value that co-exists amongst other values. There can be a tension between the benefits an individual receives and the benefits certain parts of a population within a society receive. This is why it can be ethical to implement the level 5 recommendation mentioned at the end of the presentation. This entails that you do not just offer and recommend an intervention, but that you actively enforce it. These are not just matters based on ethical legitimacy, but they are also intended to raise the issue of how an intervention will be accepted in the community and what standards we use to operate for our health interventions.

- What is the best point in time to start therapy in order to protect the population from transmission-related issues? In the case of HIV/AIDS this should happen immediately when positive cases are detected. Early treatment is especially recommended because the treatments at that point are not that harmful. We should get back to centring our discussion around ethical principles though. For example, in the case of prostate cancer, should there be wide-reaching prevention interventions or not? This difficult example was chosen for the presentation because it highlights the ethical relativity we deal with when trying to assess certain scientific data objectively.
- As a former paediatrician the issue of immunisation of children raises many ethical issues when it comes to parents taking responsibility for a third person. One of the main reasons why some kids are not immunised are, for example, reports about complications occurring after polio immunisation. A news report about one case in 10 million polio immunisations that led to death is enough, that people do not want an immunisation for their children. ,
- The question whether we should have a mandate for child health immunisations relies on the question if our goal is to immunise as many people as possible in the population, for example in the case of eradicating measles. We then need to ask ourselves what our best approach could be and where the five levels of recommendations can provide us with a guideline. The high-level recommendations could lead to backlash towards the health promotion by the population. Therefore, less restrictive strategies should be tried before you legally enforce immunization.
- Where would we need economists in this picture? Of course a cost-benefit analysis is always of use, but do we need economists at all within issues of health-related ethics issues?
- It should be pretty clear that level five recommendations cannot be done without economists; in general prevention and health promotion is done within a system that requires economists.

## 5 Intervention strategies in health promotion and prevention

### Elisabeth Pott

In the discourse on health promotion and prevention there are differences and convergences between the two. Health promotion puts the situation/context in the centre of attention. It focuses on enabling peoples' protective factors and resources within a societal context. The focus of health promotion is on enabling, with fluent transitions that are of special relevance for international strategies and communication strategies.

Prevention focuses on behaviour by placing risks in the centre of attention. The personal status of people, including their skills, living conditions, personal situations, knowledge, and professional and social behaviour, is more relevant here than in the field of health promotion.

Therefore, much of the success relies on the message design, and the primary questions of what we are going to do, which areas we need to be active in, and where our focus lies. This leads us to the settings approach: A setting is a place, where *"[...] health is created and lived by people within their everyday life; where they learn, work, play and love."*<sup>4</sup> („WHO | The Ottawa Charter for Health Promotion“, 1986).

So what is the difference between health promotion/prevention in settings versus health promoting settings? Health promotion/prevention in settings uses a specific setting (structure, staff, access to target groups, etc.) for intervention projects. Examples are smoking-prevention in schools (i.e. “be smart – don't start”) and programmes such as the healthy nutrition week in kindergarten. Health promoting settings, on the other hand, are designed to enable people to increase control over, and to improve their health within the settings by developing structures. (e.g., health promoting schools, school policy / governance).

The most promising approach seems to be a combination of both approaches. Since 90% of what is happening in schools is fixed in the curriculum,

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<sup>4</sup> Cf. <http://www.who.int/healthpromotion/conferences/previous/ottawa/en/> (accessed 20 May 2015).

it is important to have health promoting issues within the curriculum since this proves to be most successful in the long-term.

When we look through the literature for evidences on settings-interventions we can see that there are sources we look at for several different settings:

**Evidence of setting interventions for main intervention fields of BZgA**

Setting	Evidence	Sources
Family	+	(Meier-Gräwe & Wagenknecht, 2011) Bühler, Thrul, and Rosewich (2013)
School	+	Bühler, Thrul, and Rosewich (2013)
Workplace	+	Bödeker (2006)
Community	(+)	Hedin and Källestål (2002) Bühler, Thrul, and Rosewich (2013)

Note: Information about the programme-quality (QIP)

The question whether a settings approach in a school meets with success, depends on the subject that we are dealing with. For example, there is no good evidence for alcohol-prevention programs having any large-scale effects when it comes to schools. The main quality dimensions for intervention strategies are:

- Conceptual quality of approach and interventions
- Quality of planning
- Networking (professional and stake-holders)
- Effective distribution paths and media
- Project management, responsiveness to field conditions
- Evaluation and monitoring of effects
- Sustained development of agency and activities

Also of importance is the concept of “community” – which can serve as a “meta-setting” for health promotion and prevention. The main tasks will be here to

- integrate different settings (network),
- build a framework (theory) for HPP interventions on the community-level,
- give support to the actors in the different settings (financial, capacity building, examples of effective measures, etc.), and to
- show that integrated community intervention strategies are successful (evidence and evaluation).

The Nobel laureate and economist James Heckman has studied the potential economic benefit (rate of return) that investments in education have in

different stages of life. The rate of return to investment in education earns a cumulative benefit over time of the initial investment in training costs, so it considers the benefits minus the costs. He comes to the conclusion that they have the greatest effect when made earlier in the life course (Heckman & Masterov, 2007).

Heckman pointed out in his work the importance of timing the promotion in order to achieve the highest rate of effectiveness and thus the efficiency of the programmes used. His calculations show that investment in child and family support programmes provide the greatest return when they are done before schooling begins. The yields are also higher for disadvantaged families than for children from educated families. For Heckman, supporting services in preschool are especially economically viable because of multiplier effects, since improved early childhood education is the basis for improved academic performance, a good education, and a successful entry into a fulfilling professional life. These mutually reinforcing effects can be particularly effective when a long period of time is available to develop them.

Existing knowledge in the field of early support and experiences of the "National Centre on Early Prevention" show: despite a lack of long-term studies, early investment is the most useful investment for the future of children and for society as a whole. By supporting and strengthening families early on children in particular are spared much suffering at a later point in their life.

As part of the pilot project "Guter Start ins Kinderleben" (Good start to the children's lives)<sup>5</sup>, a study has been conducted on the costs and benefits of early assistance (Meier-Gräwe & Wagenknecht, 2011). This non-representative study was implemented at 8 sites in 4 German Länder. Results of the study show: the case-related costs of early assistance are several times lower than for the present child welfare interventions in preschool or school age attempting to prevent child welfare hazards in infancy. Model calculations of cost-benefit comparisons of early aid against aids which are first given later in childhood, indicate that early help for children in the life course is by far cheaper than later interventions. This is especially true under the assumptions that in later onset of aid, we also need to take the costs arising out of curative treatment, delinquency and loss of value in the employment system (unemployment, loss of value due to low qualification) into account. Costs of starting help in kindergarten (school) as compared to early assistance are 13 (34) times higher (Meier-Gräwe and Wagenknecht 2011).

What are the elements of an integrated community intervention strategy during the life-course?

**Elements of an integrated community intervention strategy**

Life course	< 3 years	3 – 6 years	6 – 10 years	10 – 16 years	16 – 21 years
Access	Family/parents Kiga/U3 Social networks	Family/parents Kiga Social networks	Family/parents Elem. school Social networks	Family/parents/ school Social networks	Family/parents (vocational) school Social networks Workplace

A good example of such a strategy is the municipal partner process called “Growing up healthily for all!” which was done on the basis of

- collecting good practice projects of communities,
- creating consensus within the cooperation network about good practice project examples,
- interactive exchange between municipal experts via internet (web 2.0),
- face to face meetings for municipal experts in all 16 federal states.

When we talk about community we need to consider it as being part of society as a whole, with social, economic, ecological and legal influences. We also cannot forget about the importance of the media in these settings, especially when it comes to public communication in order to aid agenda setting. This leads us into context-related multi-level intervention strategies that we can use:

**Context-related multi-level intervention strategies**

Level	Intervention
Population / target groups	Change of the social climate and structural framework
Settings	Health promoting kindergarten, schools, companies, communities
Individual	Quality assured interventions taking into account contextual factors

In summary the principals and standards of modern health promotion needs to address and concern itself with:

- the life course approach including an early start,
- the definition of goals and objectives,
- taking into account characteristics of target groups (diversity),
- the participation of target groups,
- strengthening of personal competencies (empowerment),
- multi-level-interventions,
- creation and development of health promoting structures,

- multi sectoral cooperation between health- , education- and social welfare system / networks,
- using good practice approaches,
- quality management / quality assurance / evaluation, and
- sustainability.

## Discussion

- The discussion affirms that it is best to start interventions at the youngest age possible.
- We need to make sure to involve the parents at the kindergarten-level and all throughout adolescence.
- *[The discussion was cut short because of limited time.]*

## 6 Quality assurance, evaluation and evidence based prevention

### Uwe Koch-Gromus

This presentation will have a special focus on quality assurance, a topic that has been a discussion around for more than 25 years. The main question is if quality assurance provides us with substantial effects, and if it is beneficial to invest in this area further in the future.

The answer would be that prevention and health promotion (PHP) can promote strong effects and can be cost-saving, but only under certain conditions:

1. Right placement! - Different effects depending on dose and type of institution.
2. Focus your target group! – Stressed subgroups are difficult to reach.
3. A complete and high-level implementation! In practice there is often a fragmentary implementation and a heterogeneous quality of implementation.

One of the major problems of health promotion is the variety of interventions available, which ultimately leads to the question of how we can develop a tool in quality assurance that covers such a broad range of

- different settings: prevention and health promotion at workplace; kindergarten; schools; neighbourhoods; etc.;
- special target groups: children and juveniles; families; elderlies; migrants; etc.;
- different agencies and stakeholders: health research; communities; health insurance; mass media; etc..

In the literature we can find several usable models. One of the more interesting models is the interactive domain model that gives health practitioners and policy-makers a tool for reflection. *“At its heart the IDM is very simple. When asked in workshops what influences decision making, people identify a wide sweep of factors which inevitably fall into the broad categories of values, theories, evidence, and the environment (ranging from the physical to the po-*

litical). These categories, including practice itself, correspond to the IDM domains and subdomains:

- **underpinnings** includes the subdomains of values, goals and ethics, theories and beliefs, and evidence; our underpinnings are our "foundations," which influence us even when we are not consciously aware of how we define or prioritize them
- **understanding of the environment** includes the subdomains of vision and analysis of health- and organization-related issues; our environments include social, political and economic structures and systems, and physical and psychological conditions, at group, organizational, community, regional, national, and international levels
- **practice** includes the subdomains of addressing issues - related to the organization and to health - and research (including evaluation); practice is composed of processes, activities and strategies

As can be seen in the diagram of the IDM, the domains and subdomains exist in the context of the broader environment. The domains and subdomains are interactive, that is, each influences and is influenced by the others."<sup>6</sup> (Kahan & Goodstadt, 2001).

We also have the **European Quality Instrument for Health Promotion** (EQHIP) from 2005/2006 on which we can take a more detailed look.<sup>7</sup> The EQHIP is a synopsis of 17 quality-assurance instruments, with 15 guidelines and 3 proceedings of certification in Europe. The English list has about 100 criteria which can be applied for self-evaluation studies, even though its reliability and utilization is still relatively unknown.

Then there is also the **Health Promotion Effectiveness Fostering Instrument** (PREFFI 2.0) (cf. Molleman, 2005), which is evidence-based in order to assure the effects of PHP-projects. It was developed from 1994 to 2003, and was used in many PHP-projects in the Netherlands. It gives a detailed criteria-guided evaluation of the projects, with 38 dimensions in 8 domains:

- Environment and feasibility
- Analysis of problems
- Health factors
- Analysis of target group

<sup>6</sup> Cf. <http://www.idmbestpractices.ca/idm.php?content=basics-overview#definition> (accessed 20 May 2015).

<sup>7</sup> Cf. [http://ec.europa.eu/health/ph\\_projects/2003/action1/docs/2003\\_1\\_15\\_a11\\_en.pdf](http://ec.europa.eu/health/ph_projects/2003/action1/docs/2003_1_15_a11_en.pdf) and [http://ec.europa.eu/health/ph\\_projects/2003/action1/docs/2003\\_1\\_15\\_a10\\_en.pdf](http://ec.europa.eu/health/ph_projects/2003/action1/docs/2003_1_15_a10_en.pdf) (accessed 20 May 2015).

- Definition of goals
- Development of interventions
- Implementation of interventions
- Evaluation

Its quality-criteria is proofed by internal methodological studies with small subsamples, with its main application being in self-evaluation.

The approach by the Universitätsklinikum Hamburg-Eppendorf has been the **Quality Assurance in Prevention (QIP)** tool (Kliche, Töppich, Kawski, & Koch, 2006), which was developed and then applied in 2003 by the BZgA and the UKE in Hamburg. The evaluation approach of the QIP uses evidence-based criteria and garners feedback with reference values and expert recommendations. It is primarily used for internal quality analysis and development, external quality assurance, project management, supply analysis, and process-evaluation. Experiences with the QIP have been made in several various fields in around 330 projects:

- Institutions: kindergarten, further education, schools, families, districts, hospitals, counselling centres, work-related projects
- Target groups: all groups of males and females and different ages
- Type of project: setting approaches (30 %), individual approaches (30 %), programmes (15 %), campaigns and train-the-trainer
- Content: predominantly exercise and nourishment! Furthermore: life skills (30 %), coping with distress (15 %), prevention of addiction (10 %)

In conclusion, the QIP therefore provides us with several benefits for prevention practice:

- A comprehensive picture of projects and institutions,
- an objective and reliable evaluation,
- an increasing consideration of evidence and expert-knowledge in prevention (professionalization),
- an improvement of programmes by providing reference values, pro- /con-analyses, practical recommendations,
- and lastly, also an image improvement, since it helps to enhance the motivation of target-groups and fund-raising, recruiting partners and decision-makers.

## Discussion

- One thing we should keep in mind when talking about peer-reviews is that we always need to keep an eye on who selects the peer-reviewers, and what the quality of the selected peers are.
- The QIP has a systematic training programme for reviewers so that all reviews are done competently.
- When it comes to quality assurance there are still many settings where research is not settled yet, and we therefore require more research before any health intervention measures should be taken. This applies to epidemiological research and biomedical research. There is no rule that can be applied dogmatically for all settings.
- Of course it is true, and this is why the QIP is a step-by-step instrument designed to increase quality assurance. It is not focused on the results per se.
- We also need to keep the role of mathematics and economics in mind when talking about these issues, especially when dealing with complex problems and complex systems. Peter Diamond has been dealing with these issues and his research could be valuable, since he does not only look at the benefit side, but also on the cost-side.
- We clearly use mathematics when we are using statistics, especially when it comes to benchmarking issues, even though we do not use mathematics-based concepts for prevention.
- We also have to keep in mind the role that ethics plays in dealing with these results, for many decisions we require a unified ethical background before we can make any health intervention decisions.

## 7 Research funding in prevention: Past and future needs

### Ulla Walter

Research on prevention has been funded in Germany since the 1970s in the following programmes:

- German Preventive Cardiovascular Medicine Study (DHP)  
Period: 1979-1992,  
ca. 7.1 million € p.a.  
Focus: community-based
- Public Health Research  
Period: 1992-2001,  
ca. 2.3 million € p.a., One-third of which went to health promotion/prevention,  
Focus: vulnerable groups, concepts, development and evaluation of interventions, capacity building
- Single projects  
Funded by Federal Ministries of: Education & Research (BMBF), Health (BMG), Family Affairs, Senior Citizens, Women and Youth (BMFSFJ), and Labour and Social Affairs (BMAS) etc.;  
amount of funding not specified
- BMBF Prevention Research Funding Programme 2004-2012,  
2.56 million € p.a.

Specifically, the Prevention Research Funding Programme of the *Bundesministerium für Bildung und Forschung (BMBF)* has had 4 funding phases in which 16 projects were funded, with more than 160 partners in research and more than 170 partners in practice. This programme focused on:

- Development and evaluation of new intervention concepts, programmes and access paths

- Evaluation of effectiveness and cost-effectiveness
- Elaboration of new methods
- Support of quality assurance
- Networking and capacity building

The following list gives an overview of the topics and approaches followed in the projects sorted by frequency (Kliche u. a., 2012)

**Intervention approaches of prevention research (n=70 projects, including subprojects)**

Topics and approaches	
Education / consulting / coaching	61.2 %
Access	37.5 %
Development of instruments	22.9 %
Need assessment	22.4 %
Health information	20.4 %
Structural interventions	12.2 %
Analysis in health economics	12.0 %

This research funding priority area identifies and emphasises the full range of prevention and health promotion practice on the one hand, and scientific evaluation concepts on the other. Within the BMBF Prevention Research Funding Programme there is also the Meta-project “Cooperation for Sustainable Prevention” whose main goals are:

- To make the funding programme public and to disseminate its results
- To establish and expand overarching communication structures
- To intensify the exchange between researchers, practice and key stakeholders
- To strengthen prevention in health care and other public sectors

The pooling of our know-how of research and practice in memoranda follows a process consisting of annual strategic conferences, large group moderation and consolidation of results. So far, three memoranda were created to summarise the connection between research and practice:

- **Memorandum 1: Research funding of prevention:** Makes recommendations for controlling application-oriented research
- **Memorandum 2: Research areas and methods:** Elaborates priority topics and methods for prevention research
- **Memorandum 3: Sustainable prevention and health promotion in Germany:** Focuses on sustainable structures and further development

These three memoranda were then signed by 12 scientific associations and then submitted to the BMBF to support research funding.

When it comes to prevention research funding we have some key needs for the future:

- Access and Accessibility
- Health Competence
- Methods
- Transfer
- Sustainability
- Structural support

On the topic of access and accessibility, when it comes to specific target groups the aim is to improve behavioural and structural interventions in order to have better health outcomes that are tailored towards predisposing factors.

When trying to reach target groups and shaping accessibility, the previous focus of interventions has been on barriers and facilitating factors, while developing strategies, which involve peers and others who can serve as mediators were less considered. The design of many programmes often does not figure in gender-issues and cultural sensitivity is rarely considered even though it can increase response-rates. Even though most projects do assess accessibility, it is rather rare that a connection is made between health-related outcomes where participation in the intervention process is seen as an indicator for effectiveness.

Methods-research has not been established as a specific research area in prevention and health promotion to date. Conventional social science and epidemiological methods and procedures are often applied to this very complex research subject matter in spite of all the difficulties in adaptation. Thus, there is a need for further methods development research.

### Methods

Evaluation of effectiveness	Development of minimum standards for demographics with a minimum number of items for specific target groups (educationally deprived groups, older persons, etc.), development of statistical analysis methods that can cope with the requirements of small scale levels, small numbers of cases, and frequently non-parametric distributions, etc.
Health economic evaluation	Identification of relevant outcome measures, development of benchmarks to evaluate the impact of prevention/health promotion on the distribution of health outcomes, etc.
Evaluation of complex interventions	Assessment design, role of contextual factors in transfer to different settings, methods for the analysis and synthesis of complex interventions, etc.
Participatory health research	Development of quality criteria, specification of methodological and epistemological principles.

The transfer of knowledge that is required is that prevention needs to be done at the interface between politics and practice:

- Traditionally, the contribution of science does not go beyond the generation and dissemination of data.
- Just because a pilot project was successful it does not mean that it will be successfully implemented in practice.
- Further high-complexity measures are required to achieve sustainable implementation processes.
- Transferability research is needed to make the acquired data on cause and effect relationships useful.
- Science and practice work in different contexts are influenced by specific interests and justifications. Only through cooperation it is possible to develop innovative and evidence-based prevention and health promotion.
- Mutual trust and the reciprocal appreciation of the respective framework conditions are essential requirements.
- To promote mutual trust, optimise QM and transfer research results, science and practice should be accompanied by a specific and mutual exchange from the beginning.
- The experiences of the BMBF funding priority programme show that, for the development of these collective processes, investments in the framework conditions are fruitful but often significantly underestimated by the involved partners

When it comes to the sustainability and the dissemination and diffusion of knowledge transfer, the communication of different benefits (health, economic, structural) is crucial. We need a framework for the dissemination of results, and knowledge about cases when evidence-based politics succeeds.

When it comes to the implementation and application, we can see that many programmes have been evaluated, but we need answers to the questions which components are effective, which adaptations are necessary and appropriate for transfer to other contexts, and which structural requirements are essential in practice.

On the topic of sustainability we need funding to analyse long-term effectiveness.

For future needs, the development and expansion of interdisciplinary research structures is needed, in order to ensure the further selective and sustainable growth of research on primary prevention and health promotion. Cooperation between research and practice is needed in order to achieve a sustainable development profile. This also requires the inclusion of previously neglected disciplines (e.g. political science, communications).

## Discussion

- We questioned multidisciplinary at the start; on the topic of cardiac diseases, what is the input of epidemiologists for preventive medicine? How would you view the interdisciplinarity in a given project?
- We have an interdisciplinary aspect in many of our projects. We have a lot of economists and people from the social sciences, and when talking about the planning-stages for interventions we work together with many other people. What we really require is a more systematic approach towards interdisciplinary exchange.
- The impression seems to be that what is really needed on a given project is that there are specialists available from a discipline that is close to the target group and combine them with specialists of the prevention approach. This should especially be helpful for complex types of problems where there could be a good contribution to be made from scientific experts that come from outside the prevention discipline.
- This presentation shows what has also been discussed internationally, especially under the terms of the efficacy of the prevention approach. The model investigates five different aspects of efficacy:

1. The reach
  2. How many people within the target population
  3. Issues of implementation
  4. Maintenance
  5. Length of intervention.
- The more we hear from public health experts it seems like we are dealing with different qualitative phenomena:
    1. The classical prevention approach
    2. The health promotion approachBoth of these require different tools, also, the complexity of research and the variants of research is different.
  - It should also be of great importance to work together with urban planners, especially architects.

## 8 General discussion

- We always need to ask ourselves what the aim of our health intervention is. Specifically the deep increase of incidences of chronic disease should be on the forefront of preventive action.
- Which methods should we choose when doing preventive interventions? There should be a decision made in the future to decide what health risks should be in the focus of preventive action. For example, tobacco use, alcohol risk, obesity, and sedentary lifestyles.
- We also need to make sure that our interventions are comprehensive, and make an effort in including experts from the various important fields depending upon the setting the health intervention is in.
- Social disparity should be diminished; this depends upon how we deliver interventions, which needs to be done with the help of quality assurance.
- We also need to investigate efficacy and how large the impact of interventions at a population level is; this is a very important issue to think about, especially in terms of dosage.
- We need to keep the different political interests in mind as well as an actor in the public health field we are in a fight against the biggest industries in the world. In order to win this fight we need to take that reality into account.
- We have to ask ourselves what is required to establish public health in the future in Germany. We have severe deficit in this area, we therefore need to find a structure and decide which areas public health should be active and what disciplines we should include. Do the colleagues we are working with have an international standing, and do they have the right tools/infrastructure to follow through with multidisciplinary support? Are they actually willing to collaborate with other disciplines or do they only work in their small area of expertise?

- We cannot stress enough the importance of the evidence-based evaluation of the measures we decide on. It will be crucial that we reassess this on a continuous basis, and in a multidisciplinary, manner.
- On the topic of ethics, more than just ethics is required; it is the socio-psychological attitude of patients and physicians. We cannot just override their resistance completely; since it is not feasible in the long run to force them to accept measures without at least being able to convince them.
- We need a better marketing of the prevention society, especially more and better data. We should be dreaming of a situation where we can use the word “Präventionsgesellschaft” (preventive society) and everybody knows what we mean by that.
- Since there are so many levels of allocation, private household, communities, EU countries, etc., we need to first decide what level an intervention should be done on, and then we need some with authority to coordinate it.
- We need to hear more about the financial coverage of prevention, in order to show that cost prevention is something you can show, since this will help us immensely in arguments about funding.
- Compression of morbidity and the issue of chronic diseases must be at the forefront, in order to show that our work is adding healthy life-years.
- *Gesundheitsförderung und -prävention muss ein wichtigeres Thema werden, wir leben in einer alternden Gesellschaft, mit mehr und mehr chronischen Krankheiten, wo Gesundheitsförderung und -prävention eine wichtigere Rolle spielen muss.*
- *Wir brauchen komplexe Interventionen. Die große Schwierigkeit ist, wirklich experimentelle Settings zu schaffen. Da müssen wir einfach mehr leisten.*
- *Wir müssen uns auch fragen ob wir die richtigen Prioritäten setzen; auch müssen wir in der Gesellschaft darüber reden, dass wir weniger Ressourcen haben und entscheiden müssen wo diese eingesetzt werden.*
- *Wir müssen weg von der Krankheitsbehandlung zur Krankheitsprävention; dies müsste in den politischen Raum reingetragen werden.*

- *Die Diskussion dreht sich oft darum das Public Health immer sehr defensiv auftritt, als ob wir eigentlich einen Teil der Ökonomie werden wollen auf der Basis von Kosteneinsparung. Die eigentliche Diskussion sollte darüber geführt werden, dass Gesundheit ein Wert für sich ist, und somit das Diktat der Ökonomie in Frage stellt.*
- *Wir müssen uns mit evidenzbasierter Prävention verbinden, dies würde den Präventionsgedanken sehr nach vorne bringen.*
- *Was geforscht wird muss auch Praxis-relevant sein.*
- *Der Dialog mit der Praxis ist extrem wichtig. Parallel dazu muss man andere Partner mit ins Boot holen, um in einen weiteren Dialog zu treten, sonst verpufft die Forschung, die wir machen. Die neuen Ergebnisse müssen stärker in die Praxis kommen, besonders bei komplexen Interventionen, und man muss neue Methoden/Möglichkeiten zur Zusammenarbeit finden.*
- *Unsere Zielsetzung muss „Empowerment“ sein. Ein großer Fokus sollte deswegen auf der Änderung der Umgebung/Verhältnisse liegen und nicht nur auf dem Verhalten von Individuen.*
- The key sentence is: Education is the best vaccination and tool for prevention.

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# 10 Appendix

## 10.1 Workshop Programme

**Date:** March 21, 2013, 11:00 a.m. - 05:00 p.m.

**Location:** Langenbeck-Virchow House, Room „August Bier“, Luisenstr. 58/59 in 10117 Berlin

### **11:00-11:30: Welcome and introduction**

Detlev Ganten, Coordinator of the Planning Group “Public Health”  
Uwe Koch-Gromus, Coordinator of the Workshop  
Hans-Peter Zenner, Coordinator of the Workshop  
Jean-Francois Bach, Coordinator of the Workshop

### **11:15-12:15: First Session**

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#### **Ethical aspects of prevention (after presentation by T. Ziese)**

Georg Marckmann, Institut für Ethik, Geschichte und Theorie der Medizin, Ludwig-Maximilians-Universität München

#### **Health economic benefits**

Klaus-Dirk Henke, Institut für Volkswirtschaftslehre und Wirtschaftsrecht, TU Berlin

### **12:15-13:15 Second Session**

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#### **Target groups with special needs for health promotion**

Thomas Ziese, Robert-Koch-Institut

#### **Intervention strategies in health promotion and prevention**

Elisabeth Pott, Bundeszentrale für Gesundheitliche Aufklärung

### **14:15-15:45 Third Session**

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#### **Quality assurance, evaluation and evidence based prevention**

Uwe Koch-Gromus, Universitätsklinikum Hamburg-Eppendorf

#### **Research funding in prevention: Past and future needs**

Ulla Walter, Institut für Epidemiologie, Sozialmedizin und Gesundheitssystemforschung, Medizinische Hochschule Hannover

### **15:45-17:00 General discussion**

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## 10.2 Workshop Participants

### Speakers

- Georg Marckmann, Institut für Ethik, Geschichte und Theorie der Medizin, Ludwig-Maximilians-Universität München
- Klaus-Dirk Henke, Institut für Volkswirtschaftslehre und Wirtschaftsrecht, TU Berlin
- Thomas Ziese, Robert Koch Institut
- Elisabeth Pott, Bundeszentrale für gesundheitliche Aufklärung, Köln
- Ulla Walter, Institut für Epidemiologie, Sozialmedizin und Gesundheitssystemforschung, Medizinische Hochschule Hannover

### Discussants

- Ursula M. Staudinger, Jacobs University Bremen, Vice-President of Leopoldina
- Ulrich John, Institut für Epidemiologie und Sozialmedizin, Universitätsmedizin Greifswald

### Member of the planning group and coordinators of other workshops

- Detlev Ganten, Charité Universitätsmedizin Berlin
- Uwe Koch-Gromus, Universitätsklinikum Hamburg-Eppendorf
- Hans-Peter Zenner, Universitäts-HNO-Klinik Tübingen
- Jean-Francois Bach, Academie des sciences, Paris

### Leopoldina Secretariat

- Kathrin Happe, Leopoldina, Halle
- Sophia Schemel, Leopoldina, Halle

### Rapporteurs

- Julian Kickbusch, Berlin
- Kathrin Happe, Leopoldina, Halle
- Alexandra Schulz, Leopoldina, Halle