FOUNDATION
HEART OF MAINZ

the third year

Annual Report – Year 2010

Foreword

One year after our first publication, I am glad to present the second yearly report on the activities of the Foundation Heart of Mainz. Thanks to the motivation of our small team, you will find that the third year of our Foundation was, just like the previous two, full of successful projects and activities.

In the following pages, I will start by discussing some concepts that are important for the prevention and the treatment of heart diseases, with particular reference to **obesity**, **high blood pressure** and **smoking**.

I will then update you on the many events organized by our Foundation: 2009 and 2010 were really full of ideas which were brought into life thanks to the commitment of our members. In December 2009, we had our second **Fundraising dinner**, this time in the **Coface-Lounge of the 1. FSV Mainz 05**, the local First League Football Club.

The dinner was animated by **the auction of the painting by Udo Lindenberg** *"No Panic in Mainz"*, which earned the Foundation the amount of 11,111.11 Euros – 11 is a "magic" number in Mainz, the city of Carnival.

In the summer we hosted, **in cooperation with the 1. FSV Mainz 05**, the **first University Goal Shooting**. Klaus Hafner, "the voice" of the stadium in Mainz, moderated the event. In parallel, the day was enriched by scientific presentations on the risks of obesity, diabetes and smoking in the youth, and on the importance of early cardiovascular prevention. In order to make our world more clear for an audience of non-specialists, we even installed a **3 meter tall, "walk-in", heart** that allowed observing "from within" how this organ is made, with its ventricles, heart valves and vessels.

The **first stipendium**, which was awarded to Maike Knorr, MD in 2009, brought very important results, which Maike Knorr, MD discusses in the following pages.

Very importantly, we were also able to enlarge our small family with two important new members: **Andy Ost**, known in the carnival scene of Mainz as one of the best young artists, and **Alexander Niemetz**, former anchorman of the ZDF. The motivation of these two distinguished individuals honours us.

With age comes maturity, and for the first time, we have developed a **project plan** that presents in detail our goals and the projects for which we ask for your support. The projects span form pre-clinical research, clinical routine in our Chest Pain Unit, to our major prevention project, the Gutenberg Heart Study, and our new poster campaign in cooperation with the 1. FSV Mainz 05 aimed at the early prevention of cardiovascular diseases and health education of children and youngsters.

At the request of our **Board of Trustees member Minister Malu Dreyer**, the Board has also decided that our Foundation should become active at the level of the whole region Rhineland-Palatinate. This ambitious step toward "expansion" of our activities will begin next year, primarily with projects aimed at children and young students and devoted to the prevention of **obesity, smoking** and the **promotion of exercise**.

On behalf of the Board of the Foundation Heart of Mainz and the Board of Trustees I would like to thank all our sponsors for the outstanding support over the past three years; I would also like to express the hope that they will remain faithful to us as our fight against cardiovascular diseases continues.

Yours sincerely

The Foundation Heart of Mainz has now solid roots:

I believe that we can look at the last three years with enthusiasm and satisfaction: in such a short time, we have become a well acknowledged institution in and around Mainz, and, as witnessed by the continued generosity of the donors, our popularity has been steadily increasing.

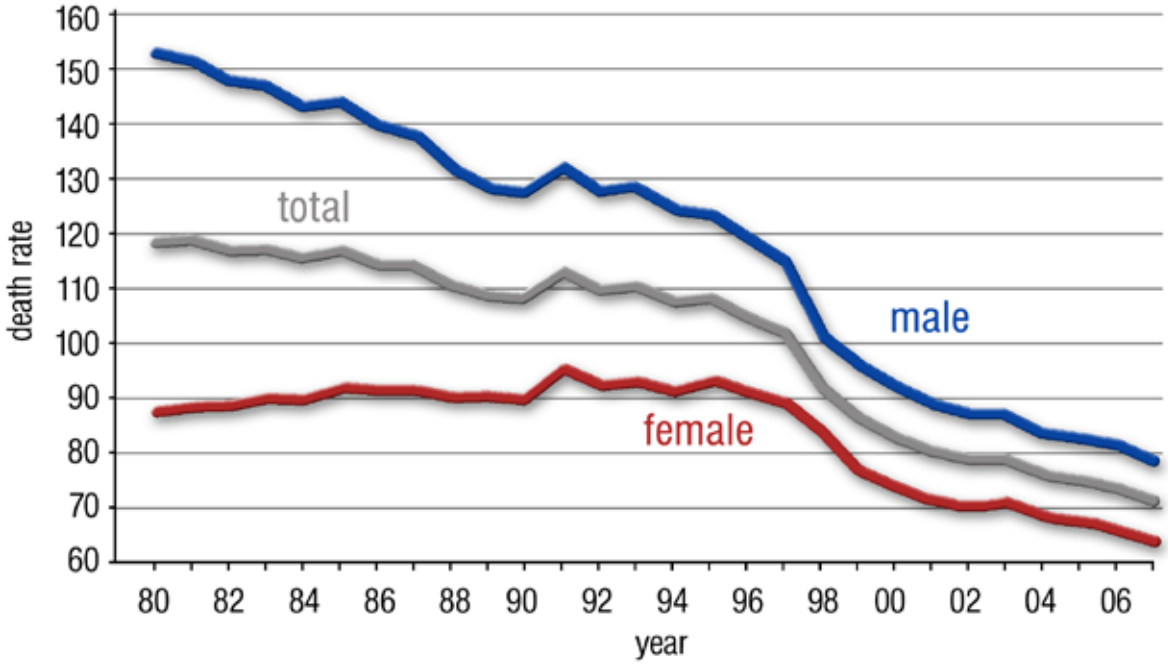
In this year's edition of the Foundation's report, I would like to inform you about the latest medical developments in Cardiology and discuss the importance of the early diagnosis and treatment of high blood pressure, which remains the most important cardiovascular risk factor. What are the causes and the symptoms of high blood pressure, how do we treat it today, and, the most important question: how does this treatment change the life expectancy of our patients?

In the following pages, I will also present our Committees and our rapidly expanding Board of Trustees. Following this, I will give you a brief overview of last year's and this year's events, after which I will introduce the project plan for year 2011.

What new insights did 2010 bring in the field of cardiology?

In the following pages I would like to present some new concept and study results which potentially have an important impact on our knowledge of cardiovascular disease. I selected for you a few topics which I believe have particular importance: heart attack, heart rhythm disturbances, smoking, and the impact of high-endurance sport, like marathon-running, on cardiovascular health.

I will start however with data from the yearly report of heart diseases by Dr. Bruckenberger. This is a publication that describes the current statistical data regarding diseases in the field of cardiology and cardiac surgery in the adult and in the young. Here are some excerpts from the 2009 report:



Cardiovascular mortality was drastically reduced through better prevention and therapy in the last 27 years.

We have done our homework: the death rate for coronary heart disease decreases dramatically!

The battle against death from acute heart infarction has been more and more successful both in Germany and in the whole world. Data from the Bruckenberger Report for 2007 demonstrate that the death rates for this disease have fallen dramatically for both men and women in the last 27 years. This is primarily due to improved medical care (rapid heart catheterization), as well as to the introduction of new drug therapies.

A similar trend was observed in the U.S., and a recent editorial, accompanying a research paper describing this significant reduction in the mortality due to heart attacks, speculated that this disease, which currently remains the world's number one reason of death, will progressively become more and more rare in the next few years:

Is Acute Myocardial Infarction Disappearing?

Editorial

Is Acute Myocardial Infarction Disappearing?

Russell V. Luepker, MD, MS; Alan K. Berger, MD

This editorial also reported that the use of cholesterol-lowering drugs, the education to physical activity and smoking-cessation policies have lead to a significant improvement in the prognosis of patients with acute heart attack. For instance, while in 1965 42.4% of the adults smoked in the United States, in 2007 this figure was only 19.8%.

A detailed analysis of the causes of the improved prognosis of patients with coronary heart disease in the period 1980 – 2000 was developed by Ford and colleagues and presented in the prestigious journal "New England Journal of Medicine". The data show that the improvement in the prognosis of patients with heart diseases is due in equal measure to the reduction of cardiovascular risk factors and to medical progresses, including the implementation of evidence-based medical therapy. In other terms, strategies for the prevention of heart diseases are at least as important as the development of new and more efficient drugs for the treatment of these conditions.

The following table summarizes these concepts: 11% of the improvement in patients´ prognosis is determined by the secondary prevention of myocardial infarction (for instance, changes in life style and medication), 10% by improvements in the treatment of acute heart attacks, 5% by improvements in the therapy of heart failure and another (surprisingly little) 5% by progresses in coronary revascularization (for instance through bypass surgery or stent implantation) in patients with stable angina pectoris. Other therapies cumulatively improve the prognosis of patients by another 12%.

Thus, prevention is the single most effective strategy: cholesterol reduction impacts for 24% of the benefit (the "cholesterol lie" does not exist!), effective therapy of high blood pressure for 20%, smoking-cessation programs for 12%, and exercise for 5%.

Interventions aimed at modifying these risk factors compensate the increased incidence of obesity (the body-mass index is increased by 8% in the last 20 years) and diabetes (also increased by 10% in the last 20 years).

The coming years will show whether we are capable to reduce these two latter risk factors to effectively improve the prognosis of patients with acute heart attack.

47% Mortality reduction through improvements in the therapy	
• Secondary prevention after myocardial infarction:	11 %
• Initial therapy of acute coronary syndromes:	10 %
• Therapy of heart failure:	9 %
• Revascularization in stable angina pectoris:	5 %
• Other therapies:	12 %
43% mortality reduction through prevention	
• Reduction of blood cholesterol:	24 %
• Therapy of hypertension:	20 %
• Smoking cessation:	12 %
• Physical exercise:	5 %
Increased risk	
• Increased obesity:	8 %
• Increased incidence of diabetes:	10 %

Causes of the improvement in the prognosis of patients with coronary heart disease

Passive smoking: a still unsolved problem!

Smoking is an issue that I particularly care about. Frustratingly, a smoking ban (by my opinion still too lax) enforced nationwide in Germany has later been further softened at the regional level. In contrast, an ever increasing amount of data strongly speaks in favor of a strict non-smoking policy, and the case of passive smoking further reinforces our point.

The consequences of passive smoking have been trivialized over and over again. Now we know it exactly: passive smoke exposure is globally one the most important risk factors for heart disease. The fact that this is also one of the simplest ones to be eliminated reinforces our motivation in the fight against it! **The World Heart Federation has now started a "global partnership non-smoking campaign".**

The campaign is based on the observation of the success obtained by smoking bans throughout the world: effective non-smoking laws have already been successfully implemented in 44 countries. A meta-analysis of 13 studies shows that in the first year after a ban on smoking in public places heart attacks decrease by 17%! Professor Sidney E. Smith of the University of North Carolina, President of the World Heart Federation, stated in a interview that, although much of the people that smoke are not aware of this, tobacco exposure still remains one of the world's most important risk factors for cardiovascular diseases: ***"If we could stop smoking and passive smoking, we would improve patients' health far more than with any drug"*** he said at the cardiology congress in Beijing. The impact of passive smoking has thus become one of the special focuses of interest of the World Heart Federation.

One third (!) of the world's population is regularly exposed to passive smoking. In people who do not smoke tobacco, passive smoking has particularly ominous consequences, as it increases their cardiovascular risk by 25% – 30%. **Even a brief exposure to second-hand smoke can trigger a heart attack that is often even more severe than in active smokers.** Further, continued exposure to passive smoking dramatically worsens the prognosis and increases the risk of a second heart attack in patients who already had an infarction. The relationship between smoking and heart attacks is scientifically and biologically plausible, and it is now well clear that the risk increases even at low exposure, while it remains high with increasing exposure.

Apparently, a "safe threshold" for smoking does not exist. It is estimated that approximately 600,000 people die yearly due to passive smoking. **Today, we believe that the most effective measure to protect against passive smoking is a complete ban against it in all public buildings and workplaces.** The statistics clearly show that this strategy has a dramatically positive impact: **only Germany is being inexplicably slow in responding to this evidence! One can only hope that the example from the Bavarian system will be taken as a model and that it will soon be implemented without unnecessary exceptions throughout Germany.**

The experience shows it clearly: laws that protect from smoke exposure yield very quickly their desired effect: according to a meta-analysis of 13 studies (Lightwood et al, Circulation 2009; 120:1372-9), the incidence of heart attack goes down by 17%, and hospitalization costs are correspondingly dramatically reduced.

Non smoking bans not only protect, but also help active smokers quit smoking. This is a point that is too often omitted from the discussion.

Is sport really unhealthy?

Basically, I do not think that this is the case; however, too much of a good thing is not always good, and it seems that too much sport might also have disadvantages. At the last International Meeting of Cardiology in Atlanta, Schwartz and co-workers presented a study which showed that individuals who participated in at least 25 marathons have particularly pronounced calcifications in the heart vessels as compared to a group of "lazier" individuals of similar age and general characteristics. Although the heart rate, body mass index and weight of runners were much lower, they showed a substantially stronger degree of coronary calcifications than the non-runners. The author, who himself is very active runner and who works at the Minneapolis Heart Institute, was quite surprised by this findings, for which no explanation has yet been found.

The Foundation Heart of Mainz takes this as an opportunity, as we plan to organize an observational science project on the occasion of next year's **Novo Nordisk Gutenberg Marathon** to look into the impact of a marathon run on vascular function.

Do taller people have less heart attacks?!

People of short stature have a higher risk to develop heart disease than taller ones, as shown by comprehensive surveys. Since in 1951, an inverse relationship between body height and heart attack risk was reported, and this association has now been investigated in at least 2000 publications. To shed more light on this still controversial topic, a Finnish group led by Tuula A. Paajanen, MD has recently performed a systematic analysis of all relevant studies: after a meticulous literature search this team identified a total of 52 studies, providing information on the relationship between stature and coronary risk in more than three million people (European Heart Journal 2010).

In this meta-analysis, people were classified according to their body size and gender (men: shorter than 165.4 cm or taller than 177.5 cm, women: under 153 cm or over 166.4 cm of height; fortunately, I am 185 cm tall).

The result was clear: the probability to develop cardiovascular diseases was around 50% higher in smaller people than in taller ones, an observation that applied to both men and women. As well, the overall death rate was relatively increased (by 37%), along with cardiovascular mortality (by 55%) and with the rate of heart attack (by 52%). The reasons for this association are unclear, but one of the authors mentioned the hypothesis that smaller people have smaller heart vessels, and therefore also a larger risk that these vessels may close, causing a heart attack.

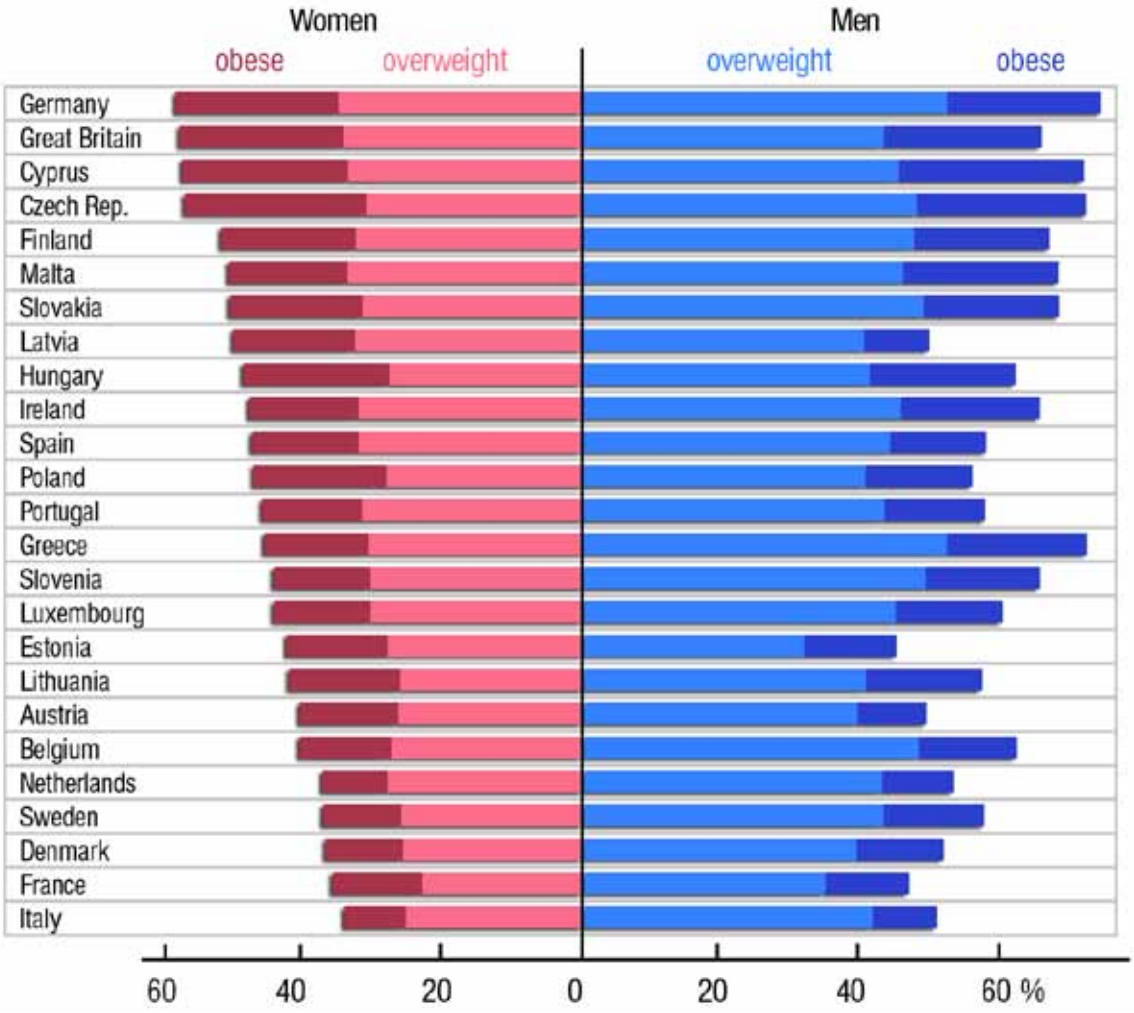
Size does matter: the man in red has a significantly higher risk of heart attack than the man in blue.

The Germans are too fat: First place in the “couch potatoes league”

- 75.4% of men and 58.9% of women in the German Federal Republic are overweight.
- By comparison, in Italy, the corresponding figures are 51.4% (men) and 34.5% (women), and the figures are similarly low in France.
- The formal definition of overweight is a body mass index (BMI, see box) greater than 25; if the BMI is over 30, one is defined obese.

This is a major reason for the epidemic spread of disease such as diabetes, high blood pressure and heart attack. According to the International Diabetes Federation, in Germany there are now 7.5 million people with diabetes. With a prevalence of 12% in the population aged 20 – 79 years old, Germany has the highest diabetes rate in Europe.

This, and particularly the problem of obesity in children, is one of the major focuses to which the Foundation Heart of Mainz devotes its efforts.



Summary of “hit list” of obesity in Europe. In the combination of obesity and overweight, Germany unfortunately beat Great Britain two years ago to become obesity‘s European Champion.

The darker the better: Chocolate protects against blood vessel damage!

The daily consumption of a piece of chocolate reduces the risk of heart diseases and stroke. The effect is due in part to a blood pressure-lowering effect of chocolate. This result stems from data from the Potsdam long-term EPIC study (European Prospective Investigation into Cancer and Nutrition) with around 20,000 participants.

The cocoa in dark chocolate contains many flavonols, substances that are beneficial for the elasticity of blood vessels and for blood pressure, as confirmed in recent years by different short-term clinical studies. Until recently, these interesting observations lacked confirmation in larger long-term studies. The EPIC study filled this gap: patients were observed for an average of eight years, during which period 166 study participants had a heart attack, 24 died, and another 136 had a stroke, fatal in 12 cases. In the group with the highest chocolate consumption, the risk for heart attacks was reduced by 27%, and the risk of stroke was approximately halved as compared to those that did not eat chocolate.

"Chocolate is known to have antihypertensive effects. Since high blood pressure is a stronger risk factor for stroke than for heart attacks, we expected that chocolate consumption would be associated with a larger impact on stroke risk. This is exactly what we have seen in the study" says Brian Buijsse, MD lead author of the study.

In the following, I would now like to discuss the main cardiovascular risk, arterial hypertension.

High blood pressure in Germany: poorly diagnosed and treated

High blood pressure is still the most important risk factor for Germans. As clearly shown in the table below, high blood pressure is estimated to be the underlying cause of up to 25.9% of the deaths in Germany, followed by tobacco with 18.3% and increased cholesterol with 15.1%. Physical inactivity and an unhealthy diet are represented with a proportion of 6 and 4%.

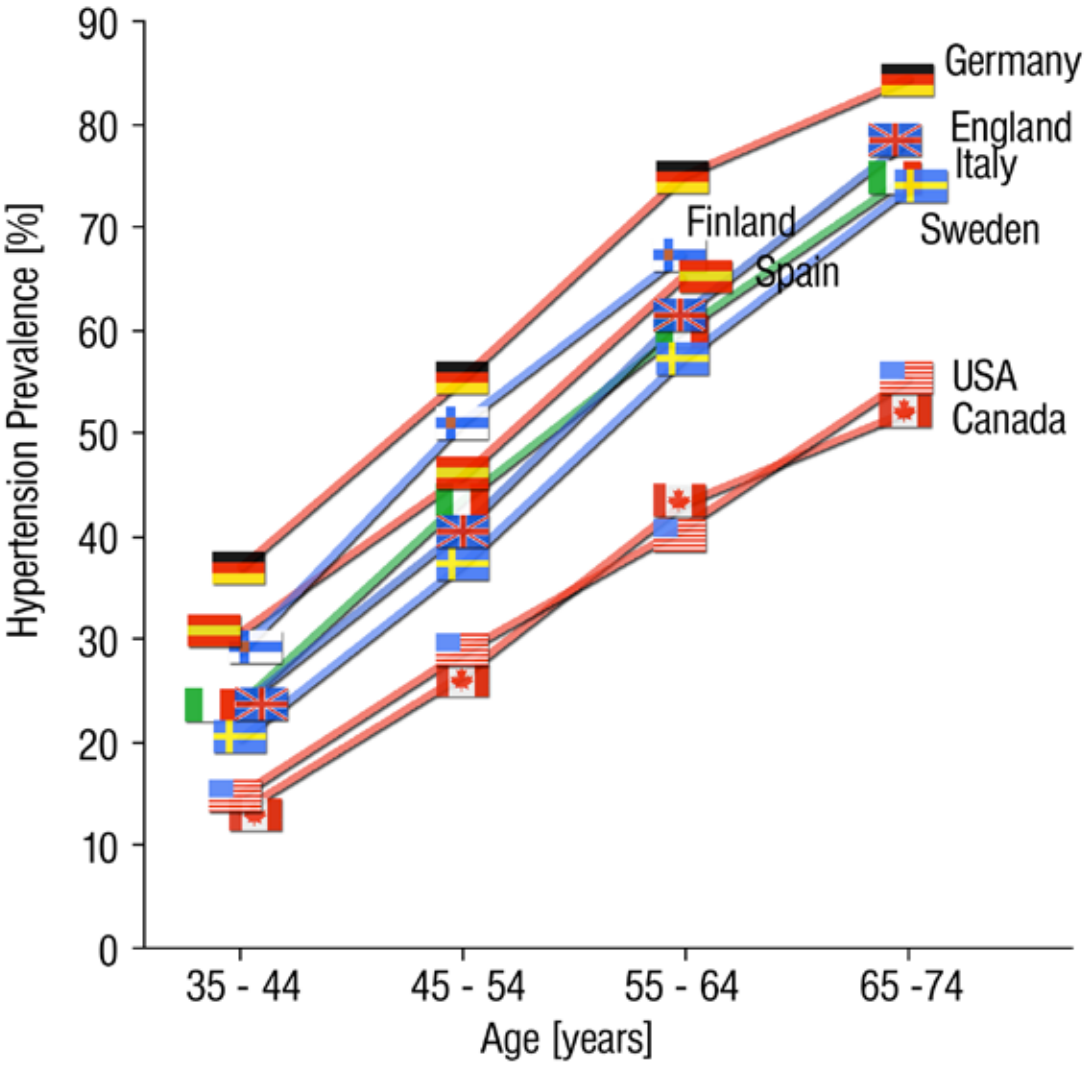
Theoretically, by bringing blood pressure under control, we would have a good chance to drastically reduce total mortality in Germany. The reality shows however that, despite effective therapies, the problem remains a very big one.

In fact, the statistics are staggering: half of Germans have high blood pressure by their 35th year of age. Of these 25 millions people, only about half know about their status, and not more than 10% are aware of the possibility (and need) to receive medical treatment. With age, the incidence of high blood pressure increases further, as 50 to 60% of those over 65 years are affected.

The ten most important factors for all-cause mortality in Germany	Relative Importance
1. High blood pressure	**25,9%**
2. Tobacco	**18,3%**
3. High cholesterol	**15,1%**
4. Obesity	**9,9%**
5. Lack of exercise	**5,9%**
6. Low consumption of vegetables	**4,1%**
7. Unprotected sex	**0,7%**
8. Pollution	**0,6%**
9. Work exposure to toxic substances	**0,4%**
10. Drugs	**0,4%**

High blood pressure is the leading cause of death!

The balance is of about 300,000 victims of heart attacks, strokes and kidney failure, in which premature death relies directly on high blood pressure. Thus, high blood pressure is far more dangerous than cancer. In an international comparative study enrolling patients from the U.S., Canada and European countries such as England, Sweden and Italy, Germans had the highest blood pressure values across all ages.



When does blood pressure become hypertension?

Blood pressure is always measured in “mmHg” (millimeters of mercury), and two measures are given, called “systolic” and “diastolic” blood pressure.

Simply said, the systolic blood pressure is the pressure created by the heart when it ejects the blood into the vessels. The lower blood pressure (“diastolic”), is the pressure measured in the vessels as the heart is filled with fresh blood.

Values below 120 / 80 mm Hg are generally considered optimal. When the systolic blood pressure lies between 120 – 129mmHg it is defined normal or “high normal”. This threshold has been chosen on the basis of statistics showing that patients with high-normal blood pressure have a significantly higher risk to develop one of the diseases associated with high blood pressure. Values of 140 – 159 / 90 – 99 mmHg identify what is called grade 1 hypertension; grade 2 hypertension is for blood pressure values of 160 – 179 / 100 – 109 mmHg and grade 3 when blood pressure is higher than >180 (systolic) or 110 mmHg (diastolic). Isolated systolic hypertension is diagnosed in patients who have a systolic blood pressure >140 mmHg with a diastolic blood pressure below 90 mmHg.

What causes high blood pressure?

This question comes up whenever a patient is found to have a high blood pressure. When this occurs, the physician almost invariably needs to admit that in about 90% of the cases a precise cause for the high blood pressure cannot be identified. Somewhat fortunately I should add, since in the remaining 10% of the cases, the cause is usually a very serious internal disease such as a kidney failure, hormone-producing tumors or poor renal blood flow.

It is postulated that in the remaining 90% of the patients, high-pressure genes, wrong nutritional habits and insufficient exercise are responsible for the high blood pressure. For example, our current consumption of table salt is about 10 grams / day: this is 5 times the amount that people took until just a few decades ago. In addition, salts are lost through physical activity with sweat: people who exercise less, should also eat less table salt.

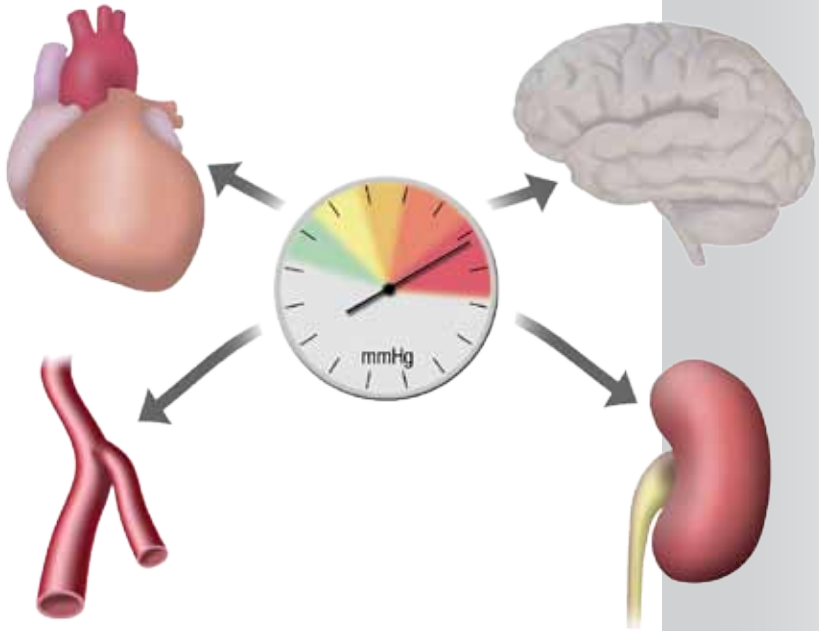
Salts in the blood keep fluids, so that the volume of fluids in our bodies is far too high, hence the high blood pressure. Modern drugs such as ACE inhibitors or angiotensin-receptor blockers interrupt this vicious circle and help regain a normal blood pressure.

Category	systolic	diastolic
Optimal	< 120	< 80
Normal	120 – 129	80 – 84
High normal	130 – 139	85 – 89
Grade 1 hypertension (light)	140 – 159	90 – 99
Grade 2 hypertension (intermediate)	160 – 179	100 – 109
Grade 3 hypertension (severe)	≥ 180	≥ 110
Isolated systolic hypertension	≥ 140	< 90

Which organs are at risk with high blood pressure?

Brain, heart, kidney and eye – high blood pressure damages vital organs.

An untreated hypertension results in damage to vital organs such as brain, heart, the aorta and the kidneys.



It is very sad to see that, despite all these possible consequences, so few people take their blood pressure seriously. The major reason for this is that, at least at the beginning, high blood pressure causes no symptoms or barely recognizable ones.

High blood pressure does not hurt and does not limit the patient's well-being.

It is only after some time, usually years, that symptoms such as headache (especially in the morning), dizziness, palpitations, chest pain (angina pectoris), shortness of breath during physical exercise, nose bleeding or, in particularly serious cases, altered consciousness, convulsions, paralysis and vomiting, appear.

Typically, the diagnosis of high blood pressure is a serendipitous finding during a routine medical check-up. Although accidental, this diagnosis should be taken very seriously, and further investigations, e.g. long-term blood pressure measurements, should always be made by a specialist.

What is the normal blood pressure for older patients?

High blood pressure is particularly frequent in the elderly. At the age of 75, up to 3 every 4 men and women have high blood pressure. This has probably to do with retention of substances in the muscle layer of the arteries, which decreases drastically the elasticity of the arteries, therefore increasing blood pressure.

Until a few years ago, physicians used the formula "100 plus age" to identify the age-adjusted value of systolic blood pressure that could still be tolerated in elderly patients. Several studies in the elderly have shown that this is false.

Like in younger individuals, systolic blood pressure should be maintained in older patients below a value of 140 mmHg. Many older patients, however, have elevated systolic blood pressure levels, while their diastolic pressure is normal or near normal. Particular precautions should be taken in these patients:
by treating systolic blood pressure one should be careful not to reduce diastolic blood pressure too much, as the latter is responsible for the blood flow in the coronary arteries. Excessive lowering of the diastolic pressure, for example below 70 mmHg, may cause the coronary blood flow to be too low in patients with narrowed coronary arteries, increasing the symptoms of angina pectoris and the risk of heart attacks.

How can I lower my blood pressure without taking medications?

Before starting drug therapy, I always try to primarily address the factors that might have caused the blood pressure to rise. Lifestyle changes are very important. As the table illustrates, there are several ways to reduce blood pressure: in obese patients, weight reduction is the most important. Dietary changes such as the introduction of the so-called mediterranean diet (more fish, vegetables, fruit, little meat and fat) and a reduced salt intake are also very important. If the blood pressure values are still too high after these life style changes, then drug therapy has to begin.

Change	Recommendation	Effect
Weight loss	Normal weight (BMI 18.5 – 24.9 kg / m^2)	5 – 20 mm Hg / 10 kg
Diet	Vegetables, fruit – less fat	8 – 14 mm Hg
Salt restriction	Max. 6 g salt per day	2 – 8 mm Hg
Exercise	Minimum 30 minutes 3 times a week	4 – 9 mm Hg
Moderate consumption of alcohol	< 30 g for man/< 20 g for woman	2 – 4 mm Hg

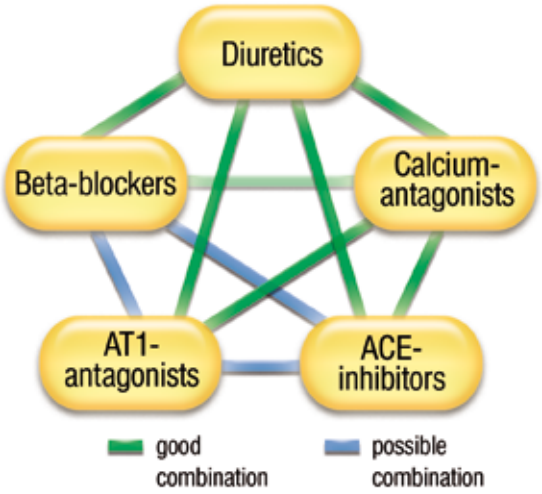
A synopsis of life-style changes associated with improved blood pressure

What is the most modern therapy for high blood pressure and what do I have to pay attention to?

It is now clear that one single medication is enough to treat blood pressure only in rare lucky cases. Most patients need more than one drug, and the good news is that many effective and well tolerated combination formulations are available. **The treatment of high blood pressure is then begun with one single drug or directly with a combination of two antihypertensive drugs in low doses.**

Beginning with a single agent is preferred in patients with mild hypertension and in those with a low or moderate cardiovascular risk. In contrast, patients with hypertension grade 2 or 3 or those with a high or very high cardiovascular risk should rather start directly with two or more medications. **Fixed combinations of two antihypertensive medications simplify treatment and increase the compliance of the patient.** It is however common that some patients need a combination of more than two antihypertensive drugs to achieve the target blood pressure. In hypertensive patients with mild to moderately elevated cardiovascular risk and in particular in older patients, blood pressure lowering should gradually occur over several weeks. In patients with a high or very high cardiovascular risk, the target blood pressure should be achieved more quickly with combinations of different drugs and rapid adjustments in the dosages employed, as these patients require a rapid intervention in order to reduce the risk of stroke or infarction.

Five groups of substances, which can be used alone or in combination as shown below in the figure, **are available today for the initiation of therapy.** These include diuretics, calcium antagonists, ACE inhibitors and the angiotensin receptor antagonists, and beta-blockers.



The available combinations of blood pressure medications. Each one of the drugs in the figure can be used as first choice in the initial therapy of high blood pressure.

How often do I need to control my blood pressure and how do I know if the treatment works?

The most important investigation in patients with high blood pressure is a **24-hours long-term blood pressure** measurement, which is the only method to have a reliable feedback on the current blood pressure value. Since many values are averaged, this method is very robust and not as vulnerable as the individual blood pressure measurements. For single measurements, especially if carried out by doctors in an environment that the patient might feel as "hostile", the so-called **"white coat effect"** must be taken into account. Long-term blood pressure measurements also provide a very good overview of how much (and whether) blood pressure drops at night. When we sleep, blood pressure falls normally by about 10%: if this is not the case (a condition referred to as a **"non-dippers"**), the physician should prescribe medications that remain active during night hours.

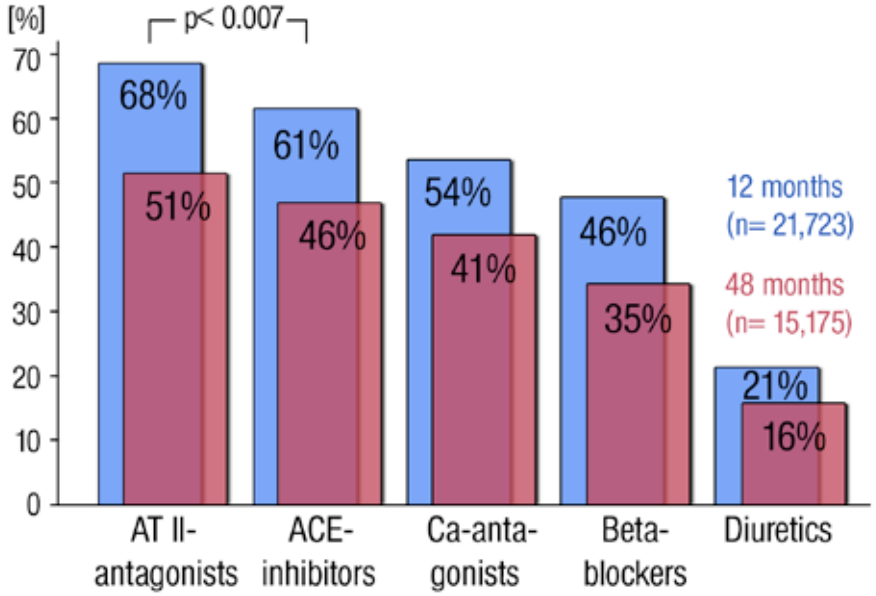
Also important are **exercise ECG studies**, with which we can test the blood pressure responses to physical strain. Rather than the blood pressure at maximum load, what is more important is the blood pressure value at 100 watts. An excessive rise in blood pressure (above 200 mmHg) during mild to moderate physical activity would indeed indicate a stress hypertension. One such investigation every year is sufficient.

One problem remains: patients with high blood pressure do not take their pills!

Just imagine this situation: ***"In principle I have no complaints, then my doctor tells me that I have a high blood pressure and now, all at once, I have to take 2 – 3 medications that may have side effects"***.

One can then understand why the motivation of asymptomatic patients with high blood pressure wanes very rapidly after their doctor's visit and why these patients take their medications irregularly, or even do not take them at all.

In this context, it is important to know which drugs are the least likely to induce side effects, in order to make them more acceptable to the patients (especially those who are asymptomatic and who did not have a stroke or heart attack). To this end, data from the U.S. show that Angiotensin receptor antagonists (AT II-antagonist, Figure below) are the best tolerated and up to 68 % of the patients continue their medication after one year, a figure that goes down to 50 % after four years. In contrast, only 21 % of the patients who are prescribed diuretics continue the therapy at one year, and only 16 % at four years. Furthermore, the best therapy is chosen based on individual symptoms: for instance, a patient with high blood pressure and high pulse will profit the most from therapy with a beta-blocker; in contrast, older patients who have a lower pulse will profit most from ACE inhibitors, angiotensin receptor antagonists or calcium antagonists.



4 years later, 50 % of patients stick to their ACE inhibitors prescritpion; only 20 % continue taking diuretics

Perspectives: is there a vaccine against high blood pressure?

The fact that patients with high blood pressure are very bad at taking their medications is a stimulus for research aimed at developing more long-lasting therapies that, administered once, will lower blood pressure for a long time, thus eliminating the need to take pills daily. **A number of studies have tried to develop a vaccination against high blood pressure.**

The first study aimed at obtaining a permanent blood pressure reduction by vaccination in humans has recently been started at the Medical College Hannover. The vaccine consists of empty viral coats that are filled with the body's own hormone angiotensin. Angiotensin is an important hormone that causes blood pressure to rise. When the vaccine is administered, our immune cells produce antibodies that remove this vasoconstrictor hormone away from the blood. This of course makes blood vessels wider and blood pressure falls again. Angiotensin is the most important endogenous hormone that is involved in blood pressure regulation in humans, and a number of anti-hypertensive drugs fight against this hormone: angiotensin converting enzyme inhibitors (ACE inhibitors), for instance, hinder the formation of the hormone, and angiotensin

What is my individual risk to have a heart attack or a stroke risk if I have high blood pressure and simultaneously one or more cardiovascular risk factors?

Although the definition of high blood pressure is the same for everybody, it needs to be stated clearly that the risk of stroke or heart attack is not the same for everybody. This risk is indeed strongly influenced by so-called comorbidities, that is by the presence of additional risk factors: a patient with high blood pressure and athero-sclerosis (ATS, see figure below) in his/her heart vessels will obviously have a much higher risk than one who does not have heart vessel disease. In contrast, the risk of heart attack and stroke in those patients with a grade 1 high pressure who do not have additional risk factors (high cholesterol, diabetes, etc) is classified as "low".

	Normal	Normal – High	Grade 1 Hyp.	Grade 2 Hyp.	Grade 3 Hyp.
No RF	normal	normal	low	mid	high
1 – 2 RF	low	low	mid	mid	very high
≥ 3 RF / Diabetes	mid	high	high	high	very high
Manifest ATS	high	very high	very high	very high	very high

normal < 10% | low 10–15% | mid 15–20% | high 20–30% | very high > 30%

Influence of risk factors (RF) on the risk of heart attack and stroke in patients low to very high blood pressure. ATS is atherosclerosis, or vessel disease.

receptor inhibitors stop its effects on the vessels. By removing the hormone from the blood with the vaccination one obtains the same effect: patients can forget about their high blood pressure and do not need to take any medication at all.

If the results of the study confirm this theory, then we might one day have a solution to the biggest problem connected with the therapy of high blood pressure: how to convince patients to stick to their doctor's recommendations!

„More than 20 patients have already been treated with this new method in Mainz. The dramatic improvement in their symptoms keeps motivating us.

Clipping of the mitral valve in Mainz

The Department of Medicine 2 is the only clinic in the Rhineland-Palatinate to offer patients with severe failure of the mitral valve this new procedure.

This new type of operation is much less invasive and dangerous than traditional surgery and is very effective in fixing defects of the mitral valve. This method has been recently approved in Europe and is being increasingly used throughout Germany.

The first patient was successfully treated on 9th June 2010 in our clinic.

This method, called "percutaneous (endovascular) mitral valve repair" is used to treat patients with severe defects of the mitral valve, one of the major causes of heart failure. The mitral valve consists of two leaflets that open to let blood pass from atrium to ventricle as the heart fills; the leaflets however need to efficiently close up as the heart pumps the blood forward in the arteries to prevent backflowing in the atrium. When this does not occur, instead of moving forward, blood is pumped backwards, which is both inefficient and dangerous as blood may then fill the lungs causing difficult breathing and disturbances in the heart rhythm. Further, the extra burden caused by this so-called "pendulum flow", that is by the blood flowing back and forth through the mitral valve, often leads to an enlargement of the left ventricle and heart failure.

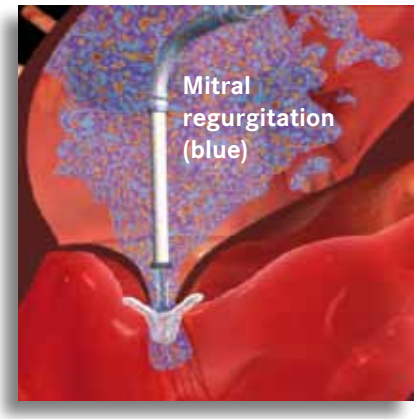
In this novel method, called "percutaneous mitral valve clipping", the two leaflets of the mitral valve are sealed together in the middle in order to leave only two lateral openings that prevent the blood from flowing backwards. The clip is implanted through a cardiac catheter under ultrasound and X-ray control. The advantage of this technique (despite its technical complexity) is that, as compared to surgery, it does not require a long hospital stay, and, more importantly, does not require that the patient's chest is opened or that the patient is connected to a heart-lung machine.

The principle and effectiveness of this technique are however very similar to the "traditional" edge-to-edge surgical technique, which is used since the early 90ies for the treatment of severe mitral valve failure. As well, in contrast to the open chest surgical edge-to-edge technique, mitral clipping can be performed on a beating heart, which means that the heart of the patient does not need to be stopped to allow for the procedure.

The system includes a clip (see figure below), a controllable guiding catheter and a steerable delivery system. **The clip is mounted at the tip of the release catheter.** The surgery is performed under general anesthesia in the cardiac catheterization laboratory and cardiac ultrasound and X-ray guide the implantation.

A Mitraclip with both arms open, mounted on the delivery catheter. Both mitral valve leaflets are tucked with the clip.

Access to the mitral valve is obtained through a vein in the groin and through puncture of the atrial septum (transseptal puncture). With this technique, the guide catheter can be brought forward until the left atrium. A three-dimensional steering system allows placing the clip in the right position in order to close the failure without damaging the surrounding structures.



mitral regurgitation (in blue): the clip is positioned, but still open

The procedure is performed by U. Hink, MD, and A. Warnholtz, MD

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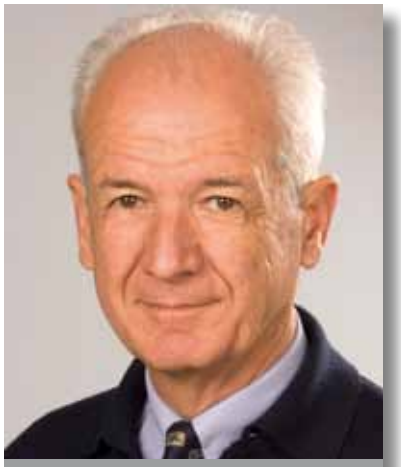

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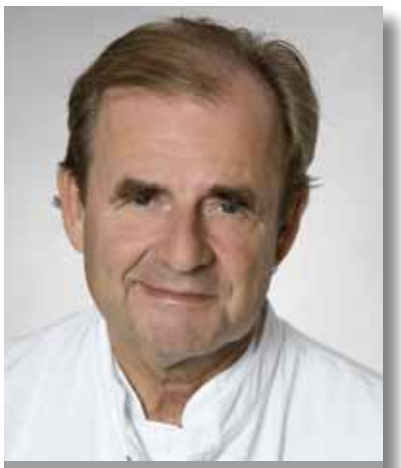

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The **founding members** of the Foundation (left to right): Elke Leykauf, Professor Manfred Thelen, MD, Willy Leykauf, Martin Dossmann, Dieter Römheld, PhD, Helmut Fahlbusch, Walter Hauck, PhD, Peter Borgas , Hans-Werner Diehl, Sibylle Kalkhof-Rose, Hans-Joachim Metternich, Wolfgang Hempler, Ruth Nachreiner, Jürgen Dietz, Professor Thomas Münzel, MD, Herbert Kerz, Manfred Werner, Hermann Becker, Peter Ditsch, Hans-Artur Bauckhage, Lukas Augustin, Peter Geipel

New Members of the
Foundation Heart of Mainz

Alexander Niemetz
Journalist

Andy Ost
Comedian

Andy Ost and Alexander Niemetz commit to the Foundation

The Foundation Heart of Mainz would like to welcome the music-comedian Andy Ost and the former chief reporter of the ZDF Alexander Niemetz as ambassadors of its prevention programs.

Since his participation in the TV-program "Mainz bleibt Mainz" in 2007 and 2008, Andy Ost is one of the stars of the carnival campaign. He has become one of the most popular artists in the Mainz region and nationwide. For him, physical fitness is particularly important, especially during the carnival campaign, where he works the most; for this reason, he is also very motivated in convincing young people how important physical exercise is.

Contact

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Donations 2009/2010

We would like to thank the donors listed below for the donations to the Foundation Heart of Mainz which they made in the occasion of an anniversary, birthday or funeral.

We also thank the many individual donors who committed their time and energies to the Foundation.

Donations

- Private donation in the occasion of the birthday of Mr Helmut Rittgen
- Private donation in the occasion of the birthday of Mr Michael Heinz
- Private donation in the occasion of the 65th Wedding anniversary of Käthe and Heinz Riepe
- Private donation in the occasion of the birthday of Mrs Gisela Borgas
- Private donation in the occasion of the birthday of Mr Helmut Kühne
- Private donation in the occasion of the birthday of Mr Günter Bley
- Private donation in the occasion of the birthday of Mr Heinz Riepe
- Donation in the occasion of the leave of Mr Metternich as managing director, Investitions- und Strukturbank Rheinland-Pfalz (ISB) GmbH on 20th May 2010
- Private donation in the occasion of the funeral of Mr Müller-Ruzika

Donation to the Foundation Heart of Mainz

A check for Euro 14,255 for the Foundation was donated by Hans-Joachim Metternich, the former CEO of Investitions- und Strukturbank Rheinland-Pfalz (ISB) GmbH, and his successor, Ulrich Dexheimer.

Hans-Joachim Metternich, credit mediator of the Federal Government in Frankfurt since the beginning of the year, asked for donations for the Foundation Heart of Mainz instead of gifts when he left his position as speaker of the ISB's management, and so this amount of money was collected.

"The Foundation has committed itself to the prevention and treatment of heart attacks to recognize and fight effectively cardiovascular diseases. It is not only research that is needed; it is investment in training of doctors and nurses and in providing the facilities with modern equipment. These tasks cannot be fulfilled without financial support. Therefore, we are pleased with the donation of the ISB," said Professor Münzel at the handover of the donation.

Professor Thomas Münzel,
Hans-Joachim Metternich,
Ulrich Dexheimer

Helmut Rittgen,
Professor Thomas Münzel,
Gisela Borgas,
Peter Borgas,
Günter Bley,
Helmut Kühne

Michael Heinz,
Professor Thomas Münzel,
Gabriele Müller-Ruzika,
Hans-Artur Bauckhage

Activities 2009 and 2010

Date	Type	Topic
21.11.2009	Herztag 2009 open-doors for patients	Heart failure
25.11.2009	Fundraising dinner in the Coface-Lounge of the 1. FSV Mainz 05	
05.12.2009	Glühwine sale	Awareness campaign of the Foundation Heart of Mainz in the city center of Mainz
01.05.2010	Parking tickets of the Parken in Mainz GmbH	Advertising of the Foundation Heart of Mainz by the Board of Directors member Lukas Augustin
06.06.2010	First University goal shooting and Health Day	Presentations, sport activities and prizes
15.09.2010	No-smoking campaign with the Deutsche Herzstiftung (German Heart Foundation)	Organized together with the 05er classroom and football-star Lewis Holtby in the Goethehauptschule in Mainz

Heart day 2009 dedicated to Heart Failure on Saturday, 21st November 2009

- When breathing becomes difficult … you can do something about it
- Heart failure – understand it, recognize it, treat it

In Germany, approximately 1.8 million people suffer from heart failure, each year about 300,000 are newly diagnosed, and 50,000 die annually from this disease.

The progress in this field is however very fast. The Foundation Heart of Mainz held, in cooperation with the German Heart Foundation, an open-doors day on the 21st of November 2009 at the University Medical Center of Mainz to present the most recent updates on the detection, treatment and prevention of heart failure as part of a nationwide Heart Week. The event was very successful, with about 200 participants. A very special range of activities awaited the visitors at the beginning of the Heart Day 2009: participants could get counseling on their personal risk of heart attack, blood pressure and blood lipid levels were determined and immediately thereafter 2 doctors of the Department of Medicine 2 offered individual consultations on how to minimize the personal risk.

"Heart failure is not an independent disease, but rather the consequence of other conditions, in particular coronary heart disease and high blood pressure. It is important to us that the population is aware of the existence of cardiovascular risk factors and of the possibility to reduce them. People need to be sensitized towards these issues: the knowledge of the causes, typical symptoms and symptoms of chronic heart failure and other cardiovascular diseases can be life saving" says Professor Thomas Münzel, founder of the Foundation Heart of Mainz and director of the Department of Medicine 2 of the University Medical Center Mainz.

Following this individual information session, visitors had the opportunity to attend lectures held by specialist, **Professor Thomas Münzel, MD,** just back from the largest cardiology congress in the U.S. reported on the latest research results.

Ascan Warnholtz, MD reported on the various methods that allow the diagnosis of heart failure, such as ultrasound examination.

Ulrich Hink, MD showed the relationship between cardiac valvular disease and heart failure and placed emphasis on the possibility to treat valvular diseases using minimally invasive surgical techniques.

In the final contribution, **Andreas Götte, MD** discussed the role of atrial fibrillation on the development of heart failure.

The event was moderated by the **Allgemeine Zeitung, reporter Michael Lang**.

The Fundraising dinner for the Foundation Heart of Mainz at the Coface-Lounge of the 1. FSV Mainz 05 on 25th November 2009

Udo Lindenberg's picture "No Panic in Mainz" achieves outstanding proceeds for our Foundation!

Udo Lindenberg was actually meant to attend our Fundraising dinner, but his busy schedule did not allow. His skills and experience as painter however made up for it, as he honored us with the gift of a picture of the Mainz Cathedral in the typical "Udo-style".

The picture was presented on the 12th November 2009 to Professor Münzel in Hamburg.

Two weeks before the Fundraising dinner we set up, with the help of the Allgemeine Zeitung, an open auction for this nice picture. A week later, the best bid was already at more than 2,000 Euro, a quite realistic offer for a picture of Udo.

During the Fundraising dinner itself, this offer was quickly surpassed to just over Euro 10,000 – and the last day of the auction the final offer was topped with a generous Euro 11,111.11. The lucky highest bidder was our board member Fritz Eckard Lang from Bodenheim.

Before handing over the picture, however, I had the chance to let Cardinal Lehmann "check" it. Like us all, he was carried away by the picture (especially by the champagne goblets, which, as he said, "looked like trumpets!").

Kardinal Lehmann is impressed by Udo's picture "No Panic in Mainz".

Glühwine sale in aid of the Foundation Heart of Mainz on Saturday, 5th Dezember 2009 in Mainz

On Saturday, the 5th December 2009, the Foundation Heart of Mainz organized a Glühwine stand selling the typical winter warm-up drink at the Römerpassage in the downtown of Mainz. Members of the Board of Trustees, including Hans-Artur Bauckhage, Professor Thomas Münzel, Hans-Werner Diehl, Hermann Becker, Peter Geipel took this chance to raise some money for the Foundation and inform the Christmas shoppers about the risks of heart diseases.

(left to right)
Hans-Werner Diehl
Andrea Mänz-Grasmück
Hermann Becker
Stefanie Lude and sister
Dieter Römheld, PhD
Andrea Römheld

The contribution of the "Parken in Mainz" GmbH

The Parken in Mainz GmbH supported the Foundation Heart of Mainz through the mediation of our Board of Trustees member Lukas Augustin.

The campaign is ongoing and if you have not had a chance to notice it yet, the next time you park downtown in Mainz turn your parking ticket and look at the back before you leave with your car!

The first University Goal Shooting with Health Day on 6th June 2010 at the University Medical Center Mainz

Exercise is important!

Several heart diseases can be prevented or retarded with a responsible and forward-looking lifestyle. For this reason, the Foundation, in cooperation with the 1. FSV Mainz 05, set out to start an information campaign on the importance of prevention and health care.

Since Germany is European Champion in overweight and World Champion in high blood pressure, it is fundamental for us to put much more attention on these issues. The cooperation with the 1. FSV Mainz 05 and many other sponsors and supporters from the region made it possible, with the organization of the first University goal shooting and Health Day on 6th June 2010.

Through exciting and interactive presentations, Professor Thomas Münzel, MD, Johannes Oepen, MD and Dagmar Gillmann-Blum, MD raised the attention on the current health problems in children and the young. Stefan Reuter and Thorsten Richter of Mainz 05 represented the 05er-Kids Club and Felix Post, MD, Clinical Manager of the Department of Medicine 2 in Mainz, reported on the role of the Chest Pain Unit in the fight against heart attacks. In particular, the presentations focused on topics such as smoking, overweight and heart attack.

An entertainment program, also focused on the role of exercise, was also provided. Klaus Hafner moderated the goal shooting in aid of the Foundation Heart of Mainz; prizes generously offered by the 1. FSV Mainz 05 brought young and old ones in motion. In addition, a health course and – an absolute highlight, a 3 meter tall, "walk-in", heart with guided tours were offered.

No-smoking campaign in the Goethehauptschule in Mainz

Foundation Heart of Mainz together with the 05er classroom, Lewis Holtby and the German Heart Foundation

Holtby warnt vorm Rauchen

05ER-KLASSENZIMMER Goethe-Schüler üb
Rauchen und seine Folgen aufgeklärt

NEUSTADT (red). Im Rahmen der Aktion „05er-Klassenzimmer" erlebten die beiden siebten Klassen der Goethe-Hauptschule einen interessanten Vortrag zum Leitthema „Ist Rauchen eine Sucht? Krankheit? Ein Vergnü
Der Vorsitzende der Mainzer Herz, Prof. T Münzel, klärte die Schü die Folgen des Raucher „Viele Jugendliche s der Tatsache nicht dass etwa 40 000 Mer Jahr an Lungenkreb ken, was auf das Ra rückzuführen ist. Di tödlichen Verkehrs trägt nur ein Zeh um mal eine Gr lung zu bekommer fahren das Rauc bringt", sagte Mü cherweise seien Schüler Raucher.

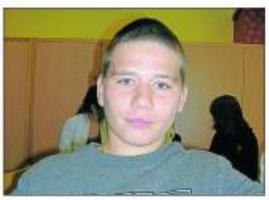
teil der Passivraucher dings problematisch. Das Thema Rauch Konrektorin Eva

Erst gar nicht mit dem Rauchen anfangen

Mainz-05-Spieler Lewis Holtby besucht 7. Klasse der Goethe-Hauptschule am Projekttag

Mainz. Lautes Klatschen erklingt, als Lewis Holtby das Klassenzimmer der 7. Klasse in der Goethe-Hauptschule betritt. Der Mainz-05-Spieler ist der Überraschungsgast bei einem Projekttag der Schüler. Es geht ums Rauchen. Das Projekt „Klassenzimmer" vom Mainz 05 und der Stiftung Mainzer Herz möchte über die Gefahren der Sucht aufklären. Thomas Münzel ist Kardiologe an der Uniklinik in Mainz. Mit einem Film verdeutlicht er den Schülern die gesundheitlichen Risiken des Rauchens.

Für die ungeteilte Aufmerksamkeit sorgt der junge Mittelfeldspieler Lewis Holtby. Sofort bestürmen die Schüler den Fußballer mit Fragen: „Haben Sie wirklich noch nie an einer Zigarette gezogen?", will eine Schülerin wissen. „Noch nie", sagt Holtby. Er habe von klein auf Fußball spielen wollen. „Rauchen, Trinken und Diskos waren deshalb tabu. Nach der Schule ging es direkt auf den Sportplatz zum Kicken." Über Mitschüler sei er zwar mit dem Rauchen in Kontakt gekommen, aber verführen wollten ihn seine Freunde nie. Den Schülern will er mitgeben, sich im Freundeskreis nicht unter Druck setzen zu lassen: „Wahre Freunde sind die, die dich nicht zum Rauchen zwingen oder überreden wollen."



Christoph Böhme (12): „Einige Freunde von mir rauchen"

„Wenn meine Freunde rauchen, sag ich: Hör auf! Aber ich kann es nicht verbieten", sagt Schülerin Najia Zich. Holtby rät den Schülern, erst gar nicht anzufangen: „Weil es erstens schädlich für die Gesundheit ist und zweitens viel zu viel kostet." Der Schüler Christoph Böhme will die Worte des Fußballers beherzigen: „Rauchen ist nicht gut", sagt er nach der Fragerunde mit Holtby, „ich werde nicht damit anfangen." (lex)

Udos Dombild unterm Hammer

VERSTEIGERUNG Rocklegende Lindenberg unterstützt die Stiftung Mainzer Herz

Von
Erich Michael Lang

MAINZ. Rocklegende Udo Lindenberg hat den Mainzer Dom gemalt. Die Mainzer kennen den berühmten Sänger bereits durch eine Ausstellung in der Landeshauptstadt als ausdrucksstarken Maler. Lindenberg dokumentiert im Jubiläumsjahr des Domes mit seinem Werk nicht nur seine Verbundenheit zu Mainz und den Mainzern, er will auch helfen. Das Bild soll nämlich zugunsten der Stiftung Mainzer Herz versteigert werden.

Am vergangenen [illegible] übergab Udo Lindenberg in Hamburg sein Dombild Professor Thomas Münzel. Der Chef der [illegible] der Universitätsmedizin kennt den Künstler aus seiner Hamburger Zeit. Professor Münzel war es [illegible] die Stiftung Mainzer Herz gegründet hat. Gesellschaftliches Engagement verbindet die beiden also ebenso, denn auch Lindenberg liegt der Einsatz für kranke und von Krankheit bedrohte Men-

Udo Lindenberg überreicht in Hamburg sein Dombild Professor Thomas Münzel.

Keine Panik in Mainz – „No panic in Mainz" hat Udo Lindenberg sein Bild vom Mainzer Dom überschrieben. Und die abgebildeten Mainzer feiern mit Udo auch sehr fröhlich wie es scheint, ohne irgendein Anzeichen von Panikattacken. Fotos: Universitätsmedizin

The Mainz Cathedral by Udo Lindenberg on auction

The rock-legend Udo Lindenberg supports the FOUNDATION HEART OF MAINZ

schen am Herzen. 2006 gründete er die Udo Lindenberg Stiftung, die sich unter anderem um Aids-Kranke in Afrika kümmert.

Von der Idee der Stiftung Mainzer Herz angetan, hat Lindenberg nicht lange gezögert, auf seine Weise zu helfen. Sein Bild vom Dom soll zugunsten der Stiftung Mainzer Herz versteigert werden. Das Mindestgebot beträgt 1000 Euro, und alle können mitsteigern. In der Zeit vom 18. bis zum 26. November wird sich entscheiden, wer künftig zuhause bei sich einen echten Lindenberg haben wird. Die AZ unterstützt die Aktion und informiert selbstverständlich über den aktuellen Stand der Gebote. Wer mitsteigern möchte, schickt eine E-Mail an **aktion-mainz@vrm.de** oder ein Fax an **06131/ 485848** oder eine Postkarte an Allgemeine Zeitung, Versteigerung, Erich-Dombrowski-Straße 2, 55127 Mainz. Genannt werden muss ein Gebot, das den Mindestbetrag von 1000 Euro übersteigt sowie die genaue Anschrift und Telefonnummer des Bietenden. Der Rechtsweg ist ausgeschlossen.

Auf dem Fundraising-Dinner der Stiftung am 25.November in der Coface Lounge am Bruchwegstadion bei Mainz 05 besteht übrigens die Gelegenheit, das Bild im Original zu bewundern. Gebote werden aber bis Donnerstag, 26. November, 17 Uhr, akzeptiert – erst dann erfolgt der Zuschlag für den „echten Udo“.

Für das Fundraising Dinner sind noch wenige Tische zu erwerben. Weitere Informationen gibt es in der II. Medizinischen Klinik unter Tel. 17-5737. Der Kauf eines Tisches kommt der Stiftung zugute.

www.herzstiftung-mainzer-herz.de

Handover of the picture by Lindenberg

With his generous offer of Euro 11,111.11, Mr. Fritz Eckard Lang, Bodenheim, was the best bidder for the art work of Udo Lindenberg.

As part of the fundraising campaign in support of the Foundation, the Allgemeine Zeitung published an open auction for the picture donated by Udo Lindenberg (see left the original article). Professor Münzel, MD, hands the original picture to the lucky highest bidder, looking forward to the generous donation to the Foundation.

Article Series “From the heart”

The education of people on the risks of heart diseases has a very important role.

In cooperation with the Mainzer Rhein-Zeitung, the Department of Medicine 2 has published a series of articles, directed to the lay public, on important issues such as heart rhythm disturbances, shortness of breath, the symptoms of heart attacks, valvular heart disease, peripheral arterial occlusive disease and the prevention of cardiovascular diseases. At the end of this series of articles, we also had the opportunity to present (and make some advertising for) our Foundation.

- **Introductory article**
  Chest pain: red alarm!

- **Episode 1**
  No time to loose: during an heart attack, every minute counts
  Interview with Professor Thomas Münzel, MD

- **Episode 2**
  Healthy lifestyle can extend life
  Philip Wild, MD

- **Episode 3**
  If the heart flutters, trips or races
  Felix Gramley, MD

- **Episode 4**
  If the heart looses energy
  Ascan Warnholtz, MD

- **Episode 5**
  When valves leak
  Ulrich Hink, MD

- **Episode 6**
  Heart attacks in women are different as in men
  Professor Christine Espinola-Klein, MD

- **Episode 7**
  When legs hurt while walking and standing
  Professor Christine Espinola-Klein, MD

- **Episode 8**
  A help for the prevention and research
  Professor Thomas Münzel, MD

Schmerzen am Herzen: Alarmstufe Rot

Neue MRZ-Serie will auf Signale aufmerksam machen – Uni-Klinik ist wichtige Anlaufstelle

Mainz. Ein Leben ohne Herz ist unmöglich, ein funktionierendes Herz eine wichtige Grundlage für Gesundheit. Krankheiten oder Störungen am Herzen sind immer ernst zu nehmen. In der neuen MRZ-Serie „Von Herzen" greifen wir verschiedene Aspekte rund ums Herz und Herzkrankheiten auf – in Zusammenarbeit mit Experten der II. Medizini-

viele, dennoch warten Betroffene oft stundenlang, bevor sie die Notrufnummer 112 anrufen

tungswagen vor der Tür steht? Aus Unsicherheit: Vielleicht ist es doch kein Herzinfarkt, und es wird gleich besser?

Aber wer hier zögert, gefährdet sein Leben. Und Angst, die Fahrt in die Klinik könnte überflüssig sein, braucht niemand zu haben. Denn an der Mainzer Universitätsmedizin gibt es eine spezielle Abteilung, die sich

Münzel eingerichtet – zu einer Zeit, als es in Deutschland nur wenige vergleichbare Abteilungen gab. Mit einem Interview mit dem Direktor der II. Medizinischen Klinik und Poliklinik startet heute die neue MRZ-Serie „Von Herzen".

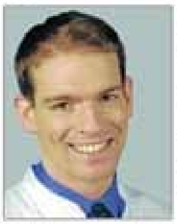
In weiteren Folgen geht es dann unter anderem um Herzrhythmusstörungen, Herzschwäche, Herzklappenerkrankungen, die ... lagen, aber auch ... gang vor Arteri... ng und um die ... inzer Herz. (ih)

Wenn das Herz flattert, stolpert oder

MRZ-Serie „Von Herzen", Folge 3: Privatdozent Dr. Th. Felix Gramley über Herzrh

Mainz. Wenn das Herz flattert, müssen nicht immer Flugzeuge im Bauch verantwortlich sein. Oft sind Herzrhythmusstörungen die Ursache, bei denen das Herz nicht im normalen Takt schlägt. Darüber schreibt in der dritten Folge der MRZ-Serie „Von Herzen" Privatdozent Dr. Th. Felix Gramley von der II. Medizinischen Klinik und Poliklinik der Universitätsmedizin Mainz.

Die Herzrhythmusstörungen bilden ein breites Spektrum von Erkrankungen, das von akut lebensbedrohlich bis harmlos und allenfalls lästig reicht. Davon betroffen können sowohl gesunde Patienten als auch Menschen mit Vorerkrankungen wie etwa



Dr. Th. Felix Gramley arbeitet in der II. Medizinischen Klinik und Poliklinik. Foto: Peter Pulkowski

chen Beschwerden. Grundsätzlich wird zwischen Herzrhythmusstörungen der Vorhöfe (Vorhöfe) und der Herzkammern unterschie-

sogar gänzlich von den Rhythmusstörungen befreien und damit auch das Überleben bei gefährlichen Störungen verlängern.

Dabei suchen die Spezialisten an der Universitätsmedizin grundsätzlich die schonendste Therapie für den Patienten aus.

Diese besteht entweder aus Medikamenten, die die Rhythmusstörungen unterdrücken (sogenannten Antiarrhythmika), oder aus einem Herzkatheter-Eingriff, in dem die für die Rhythmusstörung verantwortlichen Regionen im Herzen mit Hilfe moderner Computer-Technik verödet werden.

Auf diese Art können bis zu über 90 Prozent der Patienten erfolgreich behandelt werden. Durch die zunehmende

Wenn dem Herz die Luft ausgeht

Folge 4: Über mögliche Ursachen von Luftnot

Dr. Ascan Warnholtz arbeitet in der II. Medizinischen Klinik und Poliklinik. Foto: Peter Pulkowski

Wenn die Klappe undicht ist

MRZ-Serie „Von Herzen", Folge 5: Dr. Ulrich Hink über Herzklappenf

Was sind eigentlich Herzklappen? Wie arbeiten sie? Und wie wirken sich Herzklappenfehler aus? Darüber schreibt Privatdozent Dr. Ulrich Hink heute in Folge 5 der MRZ-Serie „Von Herzen".

Mainz. Eine Herzschwäche kann durch eine verminderte Pumpleistung des Herzmuskels, zum Beispiel als Folge eines Herzinfarkts, aber auch eines Herzklappenfehlers verursacht werden. Dann ist zumindest eine der vier Herzklappen verengt (stenosiert) oder undicht (insuffizient). Aber was sind eigentlich die Herzklappen, und wie wirken sie?

Die Herzklappen wirken wie Ein- und Auslassventile für die rechte und linke Herzkammer. Während der Er-

Dr. Ulrich Hink arbeitet an der II. Medizinischen Klinik und Poliklinik der Universitätsmedizin Mainz. Foto: Peter Pulkowski

des linken Herzens ... und Mitralklappe) si... ger und im allgemei... schwerwiegender. ... Abstand häufigste ... penfehler ist die V... der Aortenklappe, ... nannte Aortenklapp... se. Sie betrifft etwa 3... zent aller über 80-... Patienten mit einer ... klappenstenose kla... Luftnot, Brustschme... über Schwindel bi... Ohnmachtsanfällen ... körperlicher Belastu...

Da eine medik... Therapie allein nic... versprechend ist, ... Klappenfehler ... gisch versorgt werd... Operation kann au... heren Alter mit übe... rem Risiko durchgef... den.

Wenn es beim Gehen und Stehen in den Wade

MRZ-Serie „Von Herzen": Folge 7: Durchblutungsstörungen führen zur „Schaufensterkrankheit" –

Prof. Christine Espinola-Klein leitet die Angiologie der II. Medizinischen Klinik und Poliklinik der Universitätsmedizin. Foto: Peter Pulkowski

Zögern ist hier völlig falsch: Beim Herzinfarkt zählt jede Minute

Start der MRZ-Serie „Von Herzen": Interview mit Prof. Thomas Münzel, Direktor der II. Medizinischen Klinik und Poliklinik der Universitätsmedizin

Herzinfarkt zeigt sich bei Frauen anders als bei Männern

MRZ-Serie „Von Herzen", Folge 6: Prof. Christine Espinola-Klein über Frauenherzen, und warum sie anders schlagen

Kennt sich mit Frauenherzen aus: Prof. Christine Espinola-Klein. Foto: Peter Pulkowski

Gesunde Lebensweise kann Leben verlängern

MRZ-Serie „Von Herzen", Folge 2: Oberarzt Philipp Wild über Vorsorge und Vorbeugung von Herz-Kreis

Mainz. Herz-Kreislauf-Erkrankungen sind weltweit die häufigste Todesursache und meist durch eine Verkalkung des Gefäßsystems verursacht. Viele Faktoren sind in den vergangenen Jahren entdeckt worden, die zusätzlich zur angeborenen Veranlagung zur Entstehung dieser Erkrankungen beitragen. Knapp die Hälfte aller tödlichen Herz-Kreislauf-Ereignisse lassen sich durch einfache Verbesserungen des Lebensstils verhindern. Welche das sind, beschreibt Dr. Philipp Wild, Oberarzt der II. Medizinischen Klinik an der Universitätsmedizin Mainz, in dieser zweiten Folge der MRZ-Serie „Von Herzen!"

Das **Rauchen** beschleunigt die Alterungsprozesse im Körper und begünstigt die Gefäßverkalkung. Statistisch gesehen verkürzt jede einzelne Zigarette das Leben um

Dr. Philipp Wild arbeitet als Oberarzt in der II. Medizinischen Klinik der Universitätsmedizin.

hochdruck, Alterszucker und Übergewicht. Prinzipiell trägt jegliche körperliche Aktivität zur Förderung der Gesundheit bei. Bei Erwachsenen sollte sie zumindest 30 Minuten pro Tag (Kinder: 90 Mi-

Wir Deutschen sind Europameister im Übergewicht; ein gesundheitlich wünschenswertes **Gewicht** hat nur noch etwa ein Drittel der Bevölkerung. Ein Taillenumfang ab 80 Zentimeter bei Frauen und 94 Zentimeter bei Männern geht mit einem erhöhten Risiko für Stoffwechselerkrankungen einher. Übergewicht begünstigt außerdem das Auftreten des sogenannten Alterszucker (Diabetes mellitus), von dem immer mehr Menschen betroffen sind. Das Vorhandensein dieser Erkrankung erhöht das Risiko für eine Herz-Kreislauf-Erkrankung um ein Vielfaches.

Für eine gesunde **Ernährung** sollte man primär die Gesamtkalorienmenge berücksichtigen (rund 30 Kalorien pro Kilogramm Idealgewicht). Gerade die Zwischenmahlzeiten haben es häufig (an Kalorien) in sich. Hilfreich kann

Hilfe bei Prävention und Forsch

Folge 8 der MRZ-Serie „Von Herzen": Prof. Thomas Münzel über die Zusammenarbeit von Stiftung und 2. M

Die Stiftung Mainzer Herz unterstützt die Uniklinik bei der Forschung am wichtigsten Organ des Menschen. Über ihre Arbeit schreibt heute in der achten und letzten Folge der MRZ-Serie „Von Herzen" Prof. Thomas Münzel, Direktor der II. Medizinischen Klinik und Poliklinik der Universitätsmedizin Mainz.

Mainz. Optimale Patientenversorgung, wirksame Prävention und exzellente Forschung kosten Geld. Geld, das meist nur beschränkt zur Verfügung steht. Um hier zu unterstützen, wurde im Novem-

den präventiven Effekt in den Vordergrund zustellen.

Die 2. Medizinische Klinik der Universitätsmedizin engagiert sich schwerpunktmäßig bei der Diagnostik und Therapie von Herzinfarkten. Seit dem Umzug in das neue Gebäude 605 für konservative Medizin stehen der kardiologischen Klinik hochmoderne Herzkatheter zur Verfügung,

Die Gründer der Mainzer Herzstiftung im November 2007 (v.l.): Peter G... tes, Prof. Thomas Münzel, Wolfgang Hempler, Otto Boehringer. Foto:

The first Foundation Scholarship is completed successfully!

A research grant from the Foundation Heart of Mainz for Maike Knorr, MD

Influence of inflammatory cells on vascular function and the emergence of high blood pressure

The endothelium is a single-cell layer that covers the inner wall of blood vessels as wallpaper, so that blood stays separated from organs. Due to the number of cells that compose this tissue (5 x 1013), their mass (1.5 kg) and the area of the surface covered (1,000 m^2; the size of a football field), as well as for its strategic anatomical position between the circulating blood and the muscle cells, the endothelium plays a key role in the regulation of the function of the heart and blood vessels. The cells of the endothelium produce vasodilator and vasoconstrictor substances. Through these substances, the endothelium regulates the stress state of the vessels, the vascular growth and affects the activity of blood platelets and migration of white blood cells.

Risk factors such as smoking, elevated blood sugar or elevated blood fat levels cause the activation of enzymes (proteins), that increase the production of free radicals. The activation of these enzymes leads to an impaired production of the body's own nitroglycerin by the endothelium, and thus to vasoconstriction and blood pressure increase.

It is still unclear to what extent particular inflammatory cells such as the white blood cells contribute to blood pressure increase. To clarify this question, we infused a vasoconstricting drug (angiotensin II) in an animal model in which we are able to turn off specific inflammatory cells. The prominent message form this study was that white blood cells have indeed a crucial role in the regulation of blood pressure and of the stress state of blood vessels.

In turn, this might mean that a new therapeutic approach, based on the inhibition of these inflammatory cells, might also improve our capacity to fight high blood pressure.

Finally, for the first time, I would like to present you our project plan for 2011.

We have identified a total of 6 project areas in the field of research, prevention and patient care which we would like to support with your donations.

The emphasis is on programs specially designed for children, such as a prevention program against obesity and smoking, which will be offered in our hospital as a day-trip for school classes.

Project plan 2011

Field	Title	Financial need
1	**Experimental research** ● Pulmonary hypertension ● Inflammation and atherosclerosis	20,000 Euro per project total: **40,000 Euro**
2	**Chest Pain Unit poster presentation 2011** ● The old patient	**10,000 Euro**
3	**Prevention for children** ● Physiology of the heart and blood vessels ● Obesity ● Smoking ● Walk-in-heart ● Projection of films on the prevention of heart disease	**60,000 Euro**
4	**Project Gutenberg Heart Study**	**30,000 Euro**
5	**Prizes** ● for the best clinical paper ● for the best pre-clinical paper	5,000 Euro per paper, total: **10,000 Euro**
6	**Nursing project** ● Chest Pain Unit – staff training I ● Transportation of patients with heart attacks	**11,000 Euro** **25,000 Euro**
		Total: 186,000 Euro

Project 1
Pulmonary hypertension

Background:

Pulmonary hypertension is the result of a narrowing in the pulmonary circulation, a condition which causes a drastic load on the heart's right ventricle. Pulmonary hypertension is a serious diagnosis connected with a poor prognosis. The major causes of pulmonary hypertension are chronic recurrent pulmonary embolism or heart failure, with subsequent loading of the pulmonary circulation and the right heart. **According to projections, this disease is the third most frequent cause of death worldwide.** As such, a thorough knowledge of the processes leading to pulmonary hypertension and precise studies on drugs that might positively influence pulmonary hypertension is crucial.

Experimental approach:

Pulmonary arterial chronic hypertension will be induced in animal experiments by injection of monocrotaline (MCT), an alkaloid from Crotalaria spectabilis. In this model, rats are treated with monocrotaline and the effect on the development of pulmonary hypertension are observed for a total of 4 weeks. The symptoms that develop at this point are similar to those of clinical pulmonary hypertension and this animal model is widely accepted.

Expected results:

Initial results show that pulmonary hypertension leads to abnormalities in the function of the lung vessels but also in the peripheral vasculature. We will test the role of free radicals in this phenomenon, what the enzymatic sources of these free radicals are, and how we can reduce this free radical formation. The effect of organic nitrates such as nitroglycerin, of drugs such as Viagra or the so-called endothelin-receptor blockers, which are currently employed in the treatment of pulmonary hypertension will be tested.

Financial Requirements:

20,000 Euro

Project Leader:

Professor A. Daiber and Professor T. Münzel, MD

Project 1
Atherosclerosis and inflammation

Background:

Coronary heart disease and its consequences acute myocardial infarction and chronic ischemic heart disease are the leading cause of death in Germany and worldwide. In addition to traditional risk factors such as smoking, high cholesterol, high blood pressure and a family history of heart disease, inflammation also appears to play a role in the genesis of these diseases. The role of inflammatory cells in the formation of vascular calcifications is however still unclear.

Experimental approach:

In a preclinical study, we plan to test, using a mice model in which inflammatory cells can be "switched off", whether these cells have a role in the formation of atherosclerosis.

Expected results:

Preliminary results show that blood pressure can effectively be lowered in animal experimental models by switching inflammatory cells off. The aim of this research project is to reveal the exact mechanisms through which heart attack can be induced by activation of inflammatory cells, and to what extent one can prevent and/or reduce the impact of heart attacks by turning off these cells.

Financial Requirements:

20,000 Euro

Project Manager:

Philip Wenzel, MD
Senior Physician, Department of Medicine 2

Project 2

Chest Pain Unit poster presentation 2011 – The old patient

In the years 2007 and 2009 we conducted, in cooperation with the 1. FSV Mainz 05, two awareness campaigns to introduce the new Chest Pain Unit of the University Medical Center.

The motto of the 2007 presentation was:

Chest Pain Unit - Only the right tactics leads to success...also in case of heart attacks

The motto of our 2009 presentation was:

Women's hearts beat in another way...also in case of heart attacks

This campaign emphasized the fact that the symptoms of heart attacks are often different in women than in men.

In the year 2011, heart attacks in *older patients* will be the focus of our action.

Financial Requirements:

The action with a big banner at the main railway station and posters on buses costs approximately 50,000 Euro. The Foundation Heart of Mainz wants to participate in this promotion with 10,000 Euro.

Project 3
Children's Health Academy

This will be a prevention program for children (10 – 12 years). Schools from all over the Rhineland-Palatinate, preferably from small to medium-sized cities, will be invited to participate.

The program will have a duration of four hours, during which young students are invited for a visit to the University Medical Center. Visits will have minor costs (travel costs, material costs, means record the events) that need to be covered by the Foundation. The presentations of the lecturers, the organization of the events and the premises are kind donations of supporters of the Foundation.

The following topics will be addressed:

- Cardiovascular Physiology
- Obesity
- Smoking
  - Heart Walk
  - Four films on the subjects of smoking, obesity and the function of the heart and circulatory system (two films are already available)

Financial Requirements:

60,000 Euro

The aim of the event:

To improve the understanding and raise awareness on heart diseases

Duration:

4 hours per event

Lecture 1: *(45 minutes)*

How do the heart and blood vessels function?

- This is a Film developed to demonstrate the anatomy of the heart (in 3D), its function and the function of blood vessels.
  Duration 5 - 10 minutes

- Practical exercises are also offered; then children have the opportunity to experience our 3 meter tall, "walk-in", model of a heart and get an idea of how the heart looks "from inside".

Lecture 2: *(45 minutes)*

Smoking and the cardiovascular system (in cooperation with the German Heart Foundation) – An interactive slide show and two films offered by the German Heart Foundation on the following topics:

- What drives a young person to smoke?
- What are the health effects of smoking?
- How do I quit smoking?
- Hookah smoking: more dangerous than the cigarette
- Why is it "cool" not to smoke!

The movie contains:

- Examples of patients
- Famous athletes campaigning against smoke

Pause

Lecture 3: *(45 minutes)*

Obesity and physical inactivity

Topics:

- How many of the children are overweight?
- What are the reasons for this epidemic?
- What can I do about it?
- What are the dangers of obesity?
  - Loose weight for your body!
  - Loose weight for your mood!

Then the children will be offered practical exercise *(10 minutes)*

- Children listen to their own heart, measure the pulse at rest and after exercise to see how the heart pulse changes.

- A movie specifically made for the event discussing the problems of obesity and the risk associated with it, such as the development of diabetes mellitus, will then be shown.

Each of the kids and each of the teachers will then complete an individual questionnaire to test what they learned and help us improve this experience.

Project 4
The Gutenberg Heart Study

With a total of 12,000 volunteers in June 2010, the recruitment in the Gutenberg Heart Study is progressing at an amazing speed.

The Department of Medicine 2 has raised far more than 10 million Euro until now for this world-renowned project. The analysis of the data is however expensive and the FOUNDATION HEART OF MAINZ needs to continue supporting this enterprise. Continuous donations, as little as they may be, are therefore essential for the whole project.

Financial Requirements:
30,000 Euro

Project Leaders:
Professor S. Blankenberg, MD, and
Professor T. Münzel, MD

Donnerstag, 26. Februar 2009

Spezial
RHEIN MAIN PRESSE

Am Ende bis zu 17 000 Probanden untersucht

Prof. Stefan Blankenberg will mit groß angelegter Gutenberg Herz Studie Normwerte ermitteln / AZ-Serie Teil 5

MAINZ. Wer zum Arzt oder ins Krankenhaus geht, vertraut auf genaue Befunde und gezielte Behandlung. Damit Ärzte im Krankheitsfall sinnvoll agieren können, muss in der Medizin ständig geforscht werden. Die AZ stellt einige besondere Forschungsgebiete der Universitätsmedizin vor.

Von Mara Braun

Davon ausgehend, dass Risikofaktoren einer Krankheit im Bereich der genetischen Veranlagung ebenso zu identifizieren sind wie im sozialen Umfeld und messbaren körperlichen Werten, forscht die Gutenberg Herz Studie. Dabei beschäftigt sich die an der zweitenmedizinischen Klinik angesiedelte Studie unter Leitung von Professor Stefan Blankenberg mit Risikofaktoren für Herzinfarkt, Schlaganfall und tödlich verlaufenden Kreislauferkrankungen.

„Sensationell ist, dass wir am Ende in unserer Studie 15 000 bis 17 000 Probanden untersucht haben werden", begeistert sich Blankenberg und erklärt, in dieser kombinierten Breite von Probanden und den durchgeführten Untersuchungen sei die Studie weltweit die erste. Seit ihrem Start im April 2007 haben die Mediziner bereits 6 000 Probanden gesehen.

Medizin forscht

„Mit ihnen setzen wir an eben den drei Stellen an, die wir für Risikofaktoren als relevant ansehen", führt Blankenberg aus: „Epidemiologie – also im weitesten Sinne alles, was die Lebensumstände betrifft, dafür führen wir persönliche Interviews zu Studienbeginn. Molekularbiologie – wir gucken uns also die Gene an. Und schließlich klinische Untersuchungen durch, um heute bekannte Vorboten der Erkrankungen früh zu identifizieren." Die Studie, so betont der Professor, „wäre so nicht möglich ohne die phantastische interdisziplinäre Arbeit und die Hilfe der beteiligten Kollegen, unter anderem aus Laboren, Kardiologie, Angiologie, Augenklinik und Neurologie".

Ziel der Gen-Untersuchungen ist es, herauszufinden, in wieweit die Unterschiede im Aufbau der DNA mit den Vorboten der manifesten Erkrankung einher gehen. Ein Beispiel: „Wir wissen, zu den klinischen Faktoren des plötzlichen Herztodes gehört die Dicke der Herzwand, die wiederum von Blutdruck und Body Mass Index (BMI) mitbeeinflusst wird. Was wir nicht wissen ist, ob und wie genetische Veranlagungen da wirken."

Zur Veranschaulichung von DNA-Strukturen erklärt der Mediziner: „Auf jedem Gen sitzen zig Basenpaare, die sind unterschiedlich kombiniert, also variabel. Wie sie genau kombiniert sind, bestimmt, welche Eiweiße produziert werden – die so genannte RNA liest sie ab und auf dieser Basis werden Aminosäuren aneinander gekettet – das Eiweiß entsteht."

Die Art und Weise, wie eben dieser Prozess abläuft, kann krankheits- oder gesundheitsrelevant sein, erklärt der Mediziner. „So wissen wir, bei einem Raucher reagiert der Körper auf das inhallierte Gift, indem gewisse Gene vermehrt abgelesen und das von ihnen codierte Protein stärker gebildet wird. Wir hoffen nun, bei unseren Untersuchungen ähnliche Auffälligkeiten in diesem Ableseprozess zu finden – die aber eben nicht durch äußere Faktoren – wie das Rauchen – bedingt sind, sondern durch ureigene Veranlagungen."

Mit diesem Wissen, so erläutert Blankenberg, könnte man eine viel spezifischere Vorsorge betreiben, man hätte mehr Ansatzpunkte, die auf Krankheiten und deren Entstehung aufmerksam machen". Bereits bekannt sind einige soziale Risikofaktoren, darauf wollen die Mainzer Forscher weiter aufbauen. „Beispielsweise hat der soziale Status einen Einfluss auf das Herzinfarktrisiko", sagt Blankenberg. „Uns interessiert sozialen Bereichen mehr geraucht, ist der Stress höher? – warum? Wird in bestimmten Das sind eben die epidemiologischen Faktoren, mit denen wir uns auseinandersetzen."

Im Endeffekt, sagt Blankenberg, „werden alle Faktoren auf die drei relevanten Bereiche hin abgeklopft. Wir finden klinisch heraus, ein Vorgang im Körper beeinflusst das Risiko für die Krankheit X, also wollen wir wissen, wie dieser Vorgang wiederum genetisch und sozial beeinflusst wurde – umgekehrt gilt dasselbe".

Ein Vorteil der groß angelegten Studie sei die Möglichkeit, neben den Untersuchungssitzen gewisse Normwerte zu ermitteln. „Wenn wir wie geplant bis 2011 etwa 15 000 Leute untersuchen – und dieselben ab 2011 in einer zweiten Studie erneut – dann können wir dabei natürlich auch Erkenntnisse sammeln, wie dick ist denn nun eine normal gesunde Herzwand, in welchem Alter ist denn nun was für ein Blutdruck normal und ähnliches." Insgesamt, so hofft der Mediziner, „wird diese Studie uns auf dem Gebiet der präventiven Medizin ein großes Stück voranbringen können".

Lesen Sie im nächsten Teil: „Geburtenregister Mainzer Modell"

Foto: Sascha Kopp

Zahlen

- Die Studie wurde ab 2005 entwickelt, 2006 startete der Pilot. Seit Studienbeginn im April 2007 wurden 6000 Probanden registriert und untersucht, geplant sind 15000 bis 17 000 Teilnehmer.
- An der Studie nehmen je zu 50 Prozent Frauen und Männer teil.
- Die Probanden kommen aus den Regionen Mainz und Mainz-Bingen und sind zwischen 35 und 75 Jahre alt.

Project 5
Awards for the best clinical and for the best pre-clinical publication

- The prize is annually awarded to the best papers presenting research performed by physicians and non-medical personnel of the Department of Medicine 2 (for instance for MD or PhD doctoral theses).
- The prize is awarded after open competition and review by the Scientific Advisory Board of the FOUNDATION HEART OF MAINZ to a paper published in the previous year without age restriction.
- The prizes are awarded at the annual meeting of the FOUNDATION HEART OF MAINZ.

Financial Requirements:
5,000 Euro per award,
for a total of 10,000 Euro

Project 6
Chest Pain Unit training course for nurses

Context:

The human capital is a key component of the success of every enterprise, and this is particularly true in the field of healthcare. The nurses are of critical importance to the functioning of hospitals and the well-being of patients, and the task of our nursing management is to keep our staff motivated, knowledgeable and at pace with the continuous innovations in our dynamic field. The goal of this project is a systematic and qualitative development of our human resources.

Description:

The Chest Pain Unit of the Department of Medicine 2 was the first in Germany to be certified in accordance with the guidelines of the German Society of Cardiology (DGK). A requirement of the DGK is that personnel undergo regular training in emergency medicine. To meet these requirements we have set up an internal training course aimed at caregivers in the CPU, and a certification by the DGK has been obtained for this course. The course includes a total of 64 hours of theoretical lessons as well as 36 hours of individual study and will be offered annually.

Topics of the courses include:

- CPU-related cardiac diseases and their treatment according to guidelines
- Heart rhythm disturbances and their acute therapy
- Conflict Management
- Practice-relevant diagnostic and therapeutic methods
- Monitoring and special care in a CPU
- ERC resuscitation guidelines (with certification)

Expected result:

- Circa 20% of the total staff of the CPU will obtain an additional qualification
- Fulfillment of the certification criteria of the German Cardiac Society for Chest Pain Units
- Increased quality of care
- Motivation, staff retention and recruitment
- Certification and recertification in emergency care

Project cost:

- Cost of a simulator for the training in Acute Life Support (Resuscitation): Euro 10,000
- Fees for external lecturers: Euro 1,000

Project 6
Transportation of patients who need continuous monitoring

Context:

The number of patients requiring continuous monitoring has greatly expanded in recent years in our hospital due to the increase in the number of fragile patients with several chronic diseases. The proportion of hospital beds equipped with cardiac monitor in the Department of Medicine 2 is currently about 60%, and these beds are spread over several floors of the building 605 at the University Medical Center. Obviously, patients needing to be transported to receive exams or therapies also need a continuous monitor, which in turn requires qualified personnel. Since our hospital cannot afford financing these positions, our doctors and nurses take over these tasks and spend unnecessarily hours in front of elevators instead of being employed in more productive activities.

Description of the project:

A paramedic unit could safely and efficiently transport patients across examination rooms, to and from the Chest Pain Unit.

Expected result:

Improved patient safety

Shorter waiting times

Relief for doctors and nurses

Project cost:

Personnel costs for emergency workers Euro 25,000 per year

Management of Project 6:

Gabriele Maas
– Department of Medicine 2 –
Head of Department /
Head of Case Management

By supporting the **FOUNDATION HEART OF MAINZ** you will have a direct impact on saving lives and improving the quality of life for those affected.

Donations account:

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Logo designed by Peter Schmidt, Hamburg

Foundation Heart of Mainz

Dear all,

Each year about 300,000 people in Germany suffer a heart attack and roughly 65,000 of them die. Experts forecast that this number will double by the year 2025.

The mission of the **FOUNDATION HEART OF MAINZ** is the timely diagnosis and effective treatment of heart attacks and the early stages of other cardiovascular diseases, in order to counteract to projected rise in these diseases.

This begins with the prevention of and screening for these diseases and ends with the optimal care of those who have suffered an acute heart attack.

These goals can only be realized through intensive research, state-of-the-art equipment and first class education of our medical team. In order to overcome these challenges, we need your financial support.

Sincerely

Head, Department of Medicine 2
Mainz University Medical Center

The objective of **FOUNDATION HEART OF MAINZ** is the early detection and effective treatment of myocardial infarction and the early stages of other heart diseases in order to counteract the predicted increase in these disorders. The foundation, founded in 2007, supports research and teaching and continuous improvement of patient care at the Department of Medicine 2.

The **FOUNDATION HEART OF MAINZ** has the following focus to

- do preclinical and clinical research: e.g. recognizing the causes of arteriosclerosis and developing new forms of therapy,
- support the disease with the aim of improving the quality of life,
- optimize the diagnosis and treatment of coronary heart disease (CHD) and its risk factors, cardiac arrhythmia and peripheral arterial occlusion (PAOD),
- award prizes for outstanding achievements in research and in the clinical care of our patients,
- establish foreign scholarships.

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Perfect situated central to the city park of Mainz

Notes

Hyatt Regency Mainz

Hyatt Regency Mainz is an innovative, exclusive hotel conveniently located in the central Rhine-Main area of Germany. Set on the banks of the River Rhine, the hotel's architecture brilliantly integrates Fort Malakoff, Mainz's historic 19th century fortress, into its dramatic 21st century design. The three floors of the historic Fort Malakoff, with its "Palatorium" and show kitchen, Malakoff Bar with courtyard "Hofgarten" and "Weinkeller", can accommodate parties and events for up to 180 guests.

Spacious and modern architecture combined with views of the rivers Rhine and Main reflect the uniqueness of this elegant business hotel. The historical city centre, with its wine taverns and shopping facilities, is within easy walking distance. With its 268 spacious guestrooms and suites, equipped with the latest technology in communications and entertainment, this hotel is one of the most exclusive in the Rhine-Main area.

The Bellpepper restaurant features an open show kitchen with a wood-burning oven and an outdoor terrace for the summer season. The chefs are famous for their international and seasonal menus as well as for their original Japanese sushi specialities.

Take a time out at Club Olympus Spa & Fitness, featuring an indoor swimming pool, whirlpool, sauna, steam bath and solarium as well as a variety of exclusive massage and cosmetic treatments for the perfect relaxation.

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