



## EURASIA HEART — INTERNATIONAL COOPERATION IN CARDIOVASCULAR SURGERY

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**Resume.** Cardiovascular diseases are the major cause of death in neonates, children, adolescents and adults. Untreated congenital heart disease is the major cause of death worldwide in children younger than five years of age, exceeding the combined death rate caused, e.g. by malaria, tuberculosis or HIV [6]. In many developing countries, life expectancy is limited to an average of 58 to 64 years of age [1, 2]. In addition quality of life is markedly reduced while the number of disabled patients and patients depending from social welfare is steadily increasing. The major cause is undiagnosed and untreated cardiovascular diseases. Eighty percent of all cardiovascular deaths worldwide occur in developing countries [3]. Cardiology and cardiovascular surgery are powerful tools to increase the life expectancy, to improve and normalize the quality of life, to preserve patients able to work and to reduce the overall health care costs as well as costs for social welfare for those otherwise disabled by chronic cardiovascular diseases. Developing countries invest in cardiology and cardiovascular surgery. However, the establishment of a cardiovascular centre is a challenging task. The problem is that several specialties have to be developed simultaneously: cardiology, cardiac surgery, perfusion techniques, anaesthesia, intensive care as well as postoperative medical treatment – for adults and for children. The attractiveness of EurAsia Heart Foundation allowed establishing numerous international co-operations with excellent institutions, interested and engaged in teaching and education abroad.

**Key words:** EurAsia Heart; cardiac surgery; international cooperation; improvement in cardiac surgery.

### CARDIOVASCULAR DISEASES — A MAJOR PROBLEM WORLDWIDE

In Western countries, there are around 1000 cardiac operations performed per 1 million people. The mean number of patients operated in developing countries may be as low as 16 to 25 patients per 1 million people [3, 4]. Hence, there are millions of children, adolescents and adults waiting for cardiac surgery suffering from chronic cardiovascular disease. In addition, the majority of neonates with congenital heart disease are going to die early after birth despite the fact that curative surgical treatment would be possible.

Cardiac surgery is prone to have complications, which are even more demanding to treat — and complications will undoubtedly occur during the establishment of a new centre. Moreover, in contrast with many operations in general surgery or other specialties, death and life-long disability are always potential complications in every patient undergoing any type of cardiac surgery. In addition, cardiac surgical patients have become more difficult to treat than in earlier times because the easy-to-treat-patients usually are cared for by percutaneous cardiological interventions.

The current generation of cardiac surgeons in Western European countries already had experienced teachers and grew up with constantly more difficult to treat patients. Hence, they had the opportunity to grow up in parallel with the steady and continued progress of cardiac surgery experiencing the ever-increasing complexity of modern surgical techniques.

By contrast, surgeons in Eastern European and Asian countries are confronted from the beginning with difficult to treat and chronically ill patients, complex technologies and advanced knowledge in the operating theatre as well as in the intensive care station. For these reasons many centres in developing countries have — even in simple cases — high mortality and complication rates and are only able to treat a limited spectrum of patients being in urgent need for cardiac surgery [5]. On the other side, patients expect perfect results even from newly established cardiac surgical centres, and so-called “learning curves” are no more accepted.

Governments may build new departments being equipped with expensive and latest state-of-the-art devices. Nevertheless, the most important part of a well functioning cardiovascular surgical department is rep-

resented by a well-educated staff including well-trained and highly motivated doctors supported by an experienced nursing team. Doctors may be sent abroad. However, the majority is not allowed to operate abroad on their own due to tight legal restrictions. In addition, those who have become successful abroad are no more willing to return home — a well-known and dramatic consequence, which is called “the fatal brain drain”. Doctors emigrate because they do not receive adequate education at home. Regardless of the amount of money governments may invest into a newly established department, three things can simply not be bought: knowledge, experience and skills.

#### **EURASIA HEART FOUNDATION – THE SOLUTION**

The most sophisticated way of teaching is to transfer knowledge, experience and skills directly into these centres. EurAsia Heart represents a foundation, located in Zurich, Switzerland, which is focused on cardiology and cardiovascular surgery performed in children, adolescents and adults. Members of EurAsia Heart travel to developing centres cooperate on charity basis with local experts and enable them to adequately provide once their own country with cardiovascular diagnostics and treatments as well as measures to prevent these diseases. EurAsia Heart is not a group of doctors travelling around to do surgery only on their own. The basic principle of EurAsia Heart is to assist. The local team should work on its own using EurAsia Heart’s staff to improve their skills, to solve their problems and to discuss all relevant topics they need to improve the treatment of their patients. The foundation offers a one-to-one teaching with the corresponding local experts using their own equipment and treating their own patients in their own hospitals. The aim of such a kind of cooperation is (1) to reduce the operative mortality rate; (2) to reduce the complication rate and, hence, the rate of patients being disabled as the result of the interventional or surgical treatment; (3) to increase the scope of patients being able to get adequate treatment, and (4) to demonstrate how cost-effective cardiovascular patients can be treated.

Such kind of aid-to-self-aid must be based on four local conditions: (1) the local institutions of the corresponding country are involved and support the entire project; (2) the cooperation is based on local infrastructure which will steadily be improved; (3) a local team must be present which can benefit from this kind of cooperation; (4) the cooperation must be based on a long-term commitment of both players: the local staff as well as the members of EurAsia Heart Foundation.

EurAsia Heart represents the only foundation worldwide directly transferring knowledge, experience and skills in the way as described above. While numerous requests for support comes from so many Eastern European, Asian and African countries, EurAsia Heart is mainly focused on Russia, Uzbekistan, Myanmar, China and Vietnam.

#### **THE WAY EURASIA HEART WORKS**

The aim of EurAsia Heart consists in transfer of “medical knowledge” and “cardiological and surgical skills” in diagnostics, treatment and prevention of cardiovascular diseases as well as in those specialities being involved in the care of cardiovascular patients such as infectious diseases, hygiene, data collection and data analysis.

The foundation’s pool of doctors consists of cardiac surgeons, cardiologists, anaesthetists and intensive care specialists who work on a rotation basis to guarantee long-term presence of EurAsia Heart members cooperating with local experts. Every qualified doctor from whatever country being dedicated to education is welcome to work with EurAsia Heart Foundation. The scope of specialities covered by the foundation can be extended according to the needs of the local hospitals.

EurAsia Heart connects qualified experts and professionals performing clinical work, research, education, and prevention. The attractiveness as well as the huge public relation effect of the foundation is demonstrated by the press coverage in Eastern Europe, Asia and Switzerland as well.

#### **EURASIA HEART – PERFORMANCE**

Since the end of the year 2000, EurAsia Heart is working according to principles outlined above. From the administrative standpoint, EurAsia Heart has officially founded in 2006 and become registered in the trade registry of the Canton Zurich in Switzerland.

During the past 14 years:

- EurAsia Heart has been engaged in on-site education for an overall period of more than 48 months or more than 1500 days;
- EurAsia Heart performed more than 1700 cardiovascular operations in children, adolescents and adults;
- EurAsia Heart visited more than 5000 patients determining appropriate management of the cardiovascular problems in children, adolescents and adults.

EurAsia Heart’s work is entirely based on charity. All activities of the foundation are provided free of charge and without any compensation. Only travel expenses and local costs are reimbursed to the foundation members. There is no compensation paid for loss of

earnings while working abroad. In addition, members of the board and the patronage committee of the foundation also work free of charge. The only administrative costs consist in the cost for the technical installation and the operation of its website.

#### **EURASIA HEART – GUEST DOCTORS AT THE KLINIK IM PARK, ZURICH, SWITZERLAND**

EurAsia Heart Foundation actively supports the visit of guest doctors at his home base, the Klinik Im Park, Zurich, Switzerland. Travel costs, local stay and any local expenses while working at the Klinik Im Park are entirely covered by EurAsia Heart Foundation. So far, many guest doctors from Vietnam, China, Myanmar, Ukraine, Uzbekistan, Eritrea and Russia spent time as guest doctors at the Klinik Im Park, working as surgeons, anaesthesiologists, intensive care doctors, cardio-technicians or cardiologists. In the Klinik Im Park, guest doctors receive some kind of basic surgical training. Based on this, they will continue to be educated at home working with their own conditions on their own patients.

#### **EURASIA HEART – PEDIATRIC CARDIAC SURGERY**

In recent years, pediatric cardiac surgery has more and more become an important part of the educational program of EurAsia Heart. To scope these challenges, EurAsia Heart had to increase the number of participating teachers and hospitals to be able to handle the increasing demands.

Therefore, with regard to paediatric cardiac surgery, EurAsia Heart Foundation started to develop teaching cooperation with the following congenital cardiac centres of excellence:

- University Children's Hospital Zurich, Switzerland;
- AKH University Hospital Vienna, Austria;
- Ukrainian Cardiac Children's Centre, Kiev, Ukraine;
- German Congenital Heart Centre St. Augustin, Bonn, Germany.

#### **EURASIA HEART – COOPERATING PARTNERS**

The attractiveness of EurAsia Heart Foundation allowed establishing numerous international co-operations with excellent institutions, interested and engaged in teaching and education abroad. Therefore, EurAsia Heart has become an organisation with a broad international base being able to mobilise a great number of excellent experts, all being committed to the primary aims of the Foundation: teaching, education, science and research. Among these institutions you may find:

- AKH University Hospital Vienna, Austria;
- Yale School of Medicine, New Haven, USA;
- University Children's Hospital, Zurich, Switzerland;
- Ukrainian Children's Cardiac Centre Kiev, Ukraine;
- German Congenital Heart Centre, St. Augustin Bonn, Germany;
- Military Medical Academy, St. Petersburg, Russia;
- St. Petersburg Children's State Medical University, Russia;
- Meshalkin-Institute, Novosibirsk, Russia;
- Federal Medical Centre, Penza, Russia;
- Yaroslavl State Medical Academy, Yaroslavl, Russia;
- Department of Congenital Heart Surgery, University of Tomsk, Russia.

#### **EURASIA HEART – OVERALL PERSPECTIVE**

„Health Care“ has become a global task. Developmental assistance on the spot representing help to self-help is the main goal of foreign aid. The support in the development of adequate health care systems in these countries and emerging economies is inextricably linked to global, and hence, to our health.

Since 2011, EurAsia Heart has been active at least once per month extending its activities due to the increasing number of requests.

In March 2012, the foundation has been active in Donezk (Ukraine), for the first time providing simultaneous educational support and active surgery in three different specialties: cardiac surgery, neurosurgery and gastrointestinal surgery. Twenty-two patients have been operated without any complications during 5 days. In 2013, EurAsia Heart operated increase its scope in Donezk and operated in six different specialities, adding plastic and reconstructive as well as ear-nose-throat and vascular surgery to the already existing program.

Now, EurAsia Heart has two options: the first is, to restrict its activities to the field of cardiovascular medicine limiting the number of trips, the number of participating centres as well as the number of members being active for the foundation; or, EurAsia Heart extends the spectrum of specialties, the numbers of countries and departments to cooperate with as well as the number of experts being evolved in on-site education abroad offering support to other fields e.g. such as complex liver and pancreatic surgery, neurosurgery, or paediatric oncology.

According to the decision of the Board of the Foundation as well as the Patronage Committee of EurAsia Heart, the Foundation acknowledges the need to extend its scope and is willing to take the challenge to offer a more widespread support extending its educational support to various specialties following the best humanitarian Swiss tradition.

## EURASIA HEART – THE MISSION

*To preserve the health of our youth and to prevent premature deaths of our children and adolescents caused by cardiovascular diseases.*

EurAsia Heart is a registered, humanitarian, non-profit Swiss Foundation based in Zurich. The foundation is focused on training and education in cardiology and cardiovascular surgery of neonates, children and adults and is mainly active in Russia, Ukraine, China, Vietnam, Myanmar, Bulgaria, Armenia and Uzbekistan. On request of the governments, EurAsia Heart educates the medical personnel in these countries in their own departments delivering abroad what is hardest to learn: practical knowledge, technical skills and its implementation on the operating table as well as the intensive care unit.

The pool of teaching experts of the Foundation is international and is — among others — derived from Yale University, the Mayo Clinic, the University Hospital of Vienna, the German Children's Heart Centre Bonn, the University Children's Hospital Zurich and the University of Tomsk, just to name a few. The head quarter of EurAsia Heart is located in the "Klinik Im Park" in Zurich. EurAsia Heart offers basic as well as advanced postgraduate teaching in numerous hospitals in the countries mentioned above. In addition, EurAsia Heart already provided medical consulting, diagnostics, interventional and surgical treatment for numerous local decision makers in politics, science and business.

EurAsia Heart's activities in Russia serve as an example how the foundation is committed in the cooperating countries: in Russia, EurAsia is active in St. Petersburg, Petrozavodsk, Tomsk, Penza, Novosibirsk, Yaroslavl. EurAsia Heart cooperates with the Military Medical Academy in St. Petersburg, the St. Petersburg State Pediatric Medical University, the Meshalkin Institute in Novosibirsk, the Tomsk University and the Yaroslavl State Medical Academy. The only Children's University of Russia, the St. Petersburg Pediatric State Medical University has asked whether EurAsia Heart would be willing to develop and operate its congenital heart surgery program in St. Petersburg.

In recent years, the Foundation has grown exponentially working abroad for more than 4 years, performing more than 1700 surgeries. EurAsia Heart has become a "global player" and achieved to be a strong representative of Switzerland, which in turn has led to numerous other requests and international projects. Joint Presidency of the Patronage Committee EurAsia Heart Foundation are Former Swiss President and Former German Chancellor Adolf Ogi and Gerhard Schröder.

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## «ЕВРАЗИЯ-СЕРДЦЕ» – МЕЖДУНАРОДНОЕ СОТРУДНИЧЕСТВО В КАРДИОХИРУРГИИ

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♦ **Resume.** Сердечно-сосудистые заболевания являются основной причиной смерти среди новорожденных, детей, подростков и взрослых. Без лечения врожденный порок сердца становится основной причиной смерти во всем мире у детей младше пяти лет, превысив тем самым смертность, например, среди пациентов с малярией, туберкулезом и ВИЧ [6]. Кроме этого, заметно снижается качество жизни, растет число пациентов-инвалидов. Восемьдесят процентов пациентов в развитых странах погибают от сердечно-сосудистых заболеваний [3, 4]. В современном мире существует множество терапевтических и хирургических способов увеличения продолжительности жизни, улучшения и нормализации качества жизни пациентов. Развивающиеся страны поддерживают развитие кардиологии и сердечно-сосудистой хирургии [3]. В то же время создание сердечно-сосудистого центра является сложной задачей. И одной из главных проблем является сложность достижения взаимодействия нескольких специалистов в лечении одного пациента: кардиологов, сердечно-сосудистых хирургов, анестезиологов-реаниматологов, специалистов функциональной диагностики и многих других. Наиболее сложно передать знания, опыт и навыки непосредственно каждому специалисту в этих центрах. «Евразии-Сердце» представляет собой организацию врачей, которая расположена в Цюрихе (Швейцария) и ориентирована на направление

кардиологии и сердечно-сосудистой хирургии у детей, подростков и взрослых. Активность фонда позволяет установить многочисленные международные кооперации с перспективными учреждениями мира.

◆ **Key words:** кардиохирургия; развитие сердечно-сосудистой хирургии; взаимодействие кардиологов и кардиохирургов; «ЕврАзия-Сердце»; международное сотрудничество в кардиохирургии.

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