

# “We Need to Reconsider Medicine.”

Returning to China in 1999, after a decade of cardiovascular research at two German university hospitals, Professor Junbo Ge turned his research into practice by helping to establish modern cardiology in a vast country that is experiencing rapid social change.

By Philipp Grätzel von Grätz, MD



His research in the 1990s taught Professor Junbo Ge to ask questions. Asking questions can also be helpful when considering the future of cardiology: Which diseases will be predominant in times of demographic change and urbanization? Do patients need so many catheterizations? How can therapy be optimized? *Medical Solutions* discussed these issues with the current President of the Asian-Pacific Society of Interventional Cardiology not on the top of a modern skyscraper in Ge's hometown of Shanghai but back in Germany, in medieval Forchheim.

**The World Health Organization's recent Global Atlas on Cardiovascular Disease Prevention and Control has once again identified cardiovascular diseases as the leading cause of death worldwide. And it says that this will remain the case until at least 2030. There are certain differences, though. In Europe and**

**“Asking why is not only a big driver for research, it is also helpful in clinical routine.”**

Professor Junbo Ge, Chief Physician,  
Department of Cardiology,  
Zhongshan Hospital, Fudan University,  
Shanghai, China

**in the U.S., cardiovascular mortality is in fact falling. In many other countries, it is rising sharply. What is the situation in China?**

Ge: We have been witnessing huge changes in the spectrum of disease over the last thirty years or so. Before China started to open up to the West in 1977, we had many infectious diseases. The open policy brought more wealth to an increasing share of the Chinese population, which is good, of course. But it also led to lifestyle changes. As a consequence, we are now confronted with lifestyle-related diseases that have already been prevalent in the West for some time. We have more obesity, more diabetes, more hypertension. And these diseases have similar consequences in China like everywhere else in the world: The occurrence of cardiovascular and cerebrovascular disease has increased dramatically, and it continues to increase substantially



Professor Junbo Ge is the current President of the Asian-Pacific Society of Interventional Cardiology and Chief Physician of the Department of Cardiology at Zhongshan Hospital, Fudan University, Shanghai, China.

Junbo Ge with the Artis zee in the Siemens showroom in Forchheim, Germany. He is proud to use the same system in his Shanghai department's hybrid room.



every year. To illustrate what I mean: 30 years ago, when I was a fellow at medical school, I remember a patient with myocardial infarction who had all the typical electrocardiogram signs and enzymes that you would expect. This really interested me because it was so rare at that time. I even asked a co-fellow to swap shifts so I could observe the patient longer. Today, we have patients with myocardial infarction practically every day. And if I go through the wards of our department, at least 60 percent of all patients present with coronary artery disease [CAD].

#### **What are the main cardiovascular risk factors these days?**

Ge: This again is very similar all over the world. We have many people with hyperlipidemia, diabetes, and hypertension. Smoking has also become a big problem in China. In order to cope with the cardiovascular epidemic, we will have to tackle these risk factors sooner or later. Nations like, for example, the Scandinavian countries have shown how to do that. They have managed to stop the increase in coronary artery disease, mainly by reducing the risk factors.

#### **How significant is the impact of global megatrends such as demographic change and urbanization on cardiovascular health?**

Ge: These are big issues, obviously, and this again is very evident in China. Demographic change is leading to an increase in cardiovascular diseases. This is true for coronary artery disease, but also for other cardiovascular diseases like chronic heart failure and cardiac valve disease, and, of course, for cerebrovascular diseases. Take Shanghai, for example: The average life expectancy in Shanghai has now risen to 81 years. This comes with an increase in the occurrence of heart failure. I am the Principle Investigator of a big prospective epidemiologic study involving 20,000 people, very similar to the Framingham study. We did an analysis for the tenth Chinese five-year plan some years ago and found that the average occurrence of heart failure in adults is around one percent. This is quite a lot.

## **Cardiovascular Disease in China**

#### **How many people with a cardiovascular disease are there in China?**

According to recent WHO figures, the mortality of cardiovascular diseases in China is 312 per 100,000 male and 260 per 100,000 female inhabitants. This accounts for 38 percent of the total mortality. Overall cardiovascular morbidity, excluding risk factors and hypertension, is around 13.4 percent, according to WHO 2009 figures.

#### **What is the most common cardiovascular disease?**

WHO estimates that around 38 percent of the Chinese population has elevated blood pressure. The rate of obesity and overweight is around 30 percent, as is the rate of people with elevated cholesterol. Excluding risk factors, coronary artery disease and peripheral artery disease are probably the most common cardiovascular diseases, but detailed figures are lacking. The ten-year coronary artery event rate was estimated by Chinese scientists to be 1.5 percent in men and 0.6 percent in women in 2004.

#### **What proportion of health expenditure goes toward cardiovascular diseases?**

A World Bank Report of 2008 sees a very high economic impact of non-communicable diseases in China. Cardiovascular diseases, stroke, and diabetes alone are expected to cost the country US\$550 billion in the decade from 2005 to 2015.

#### **What about urbanization?**

Ge: This is interesting, too. There are massive regional differences in cardiovascular morbidity in China. This at least partly reflects urbanization, but it also reflects other lifestyle differences. The number of cases of CAD, for example, becomes lower and lower the further south we travel in China. In Qingdao, where I come from, people eat more salt, smoke more cigarettes, and drink quite a lot. CAD incidence in Qingdao is around 230 per 100,000, whereas in the far south it is only 48 per 100,000. In Xinjiang, a region in the far northwest of China, we increasingly see severe three-vessel diseases in young people. The reason is that when people who were previously very poor become wealthy, the first thing they do is change their eating habits. They eat more fat and fast food, and they drink more. What we are realizing is that the

very rich are actually vigilant about their health, and so are the very poor. The problem is the wealthy middle class, which is increasing year by year. When the western and central regions of China catch up with the east, we will see an explosion in cardiovascular diseases and heart attacks. It is simple: When you go to Shanghai, there is no longer a big difference from the west in terms of wealth and lifestyle. Therefore, the number of civilization-related diseases is also fairly similar. This will happen in other parts of China as well, and it is already happening in many parts of the world.

#### **What does this mean for healthcare spending?**

Ge: Healthcare spending is already rising. I am not aware of the latest data for China. But in the People's Congress that takes place in March every year, the most

common proposals that members of congress make to the government are related to education and medical care. The government is putting a lot of effort into improving medical care. It has defined 11 diseases that are covered by the state, including acute myocardial infarction and congenital heart disease. We would be happy to see heart failure added to the list as well. But this is a lot of money, and the government won't be able to cover all the costs. What I consider to be at least as important, if not more important, is investing more money in health-related education. We have to tell people what a better and healthier life looks like, otherwise you become wealthy and throw all your money into hospitals afterwards. Many people are simply not aware of how to live healthily. And this is certainly not just a Chinese problem but a global one.

**An increase in cardiovascular morbidity means that people need access to cardiovascular diagnostics and therapies, both medical therapies and interventional...**

Ge: It does, and it is a challenge. When I was called back from Germany in 1999 there were around 4,500 cardiovascular interventions in China in total per year. Since then, this number has increased annually by around 25 percent. In 2011, we had 333,000 cardiovascular interventions, which means that China is now number two in the world behind only the U.S. There is no doubt that this number will increase further. At the moment, access to cardiovascular diagnostics and therapies is better in the metropolitan areas of the east than it is in Central China, for example. And indeed I think that companies like Siemens have a lot of responsibility here. They should not just be selling devices but they should also be training young doctors to use the technologies in the right way. The Chinese government is also active, of course. The Ministry of Health decided to build around 100 training centres all over the country. Young fellows now should be trained in one of these centres before they are given a license to perform interventions on their own in their respective local hospitals.

## Professor Junbo Ge

Before Professor Junbo Ge became Chief Physician in the Department of Cardiology at Zhongshan Hospital, Fudan University, in Shanghai, he worked as a cardiologist in Germany for almost ten years. He received his doctor's degree at the University of Mainz and later became Director of the Intravascular Ultrasound Laboratory at Essen University Hospital. In 1999, Ge was called back to China by the State Ministry of Personal Affairs. He has made many contributions to the fields of intravascular ultrasound and interventional cardiology and authored more than 200 scientific and clinical publications.

**In western countries, there are increasing discussions on where interventional cardiology is or should be heading. Since the publication of the results of the COURAGE trial and other, similar trials, many people are arguing that there are too many diagnostic catheterizations and too many interventions. What is your opinion on this?**

Ge: We are discussing these issues in China as well. We have to convince colleagues and patients of the benefits of new treatments. The COURAGE study showed no benefit of interventions in stable coronary artery disease in terms of prolonging patients' lives. I was not too surprised about this result, because I think that normally nature is the determining factor in terms of prolonging lives. What COURAGE showed is that we can improve the quality of life of our cardiac patients substantially by performing interventions. And this is what our patients

are looking for in the first place. This is similar to other diseases, by the way. If a patient comes to me and has a headache, I will give him medication to improve his quality of life. This is what I always tell my young fellows: You should not overuse the available technologies, but you can believe in these methods. We have more than enough evidence that we can improve ischemia and thus quality of life.

**You have done extensive research in the field of intravascular ultrasound (IVUS) in your career. What role could imaging technologies play in making cardiology more targeted, more individualized?**

Ge: First: If anything can be done non-invasively it should be done noninvasively because it is more comfortable and less painful for the patient. Second: In many ways, the existing noninvasive techniques are still not sufficiently accurate, so there is no way around invasive cardiology for the moment. There are some interesting noninvasive imaging technologies out there, for example multislice computed tomography or modern cardiac magnetic resonance imaging. I think that, with innovative software, it won't be necessary to use invasive technologies like IVUS or interventional measurements of fractional flow reserve in order to decide on the optimal treatment for patients with, for example, ambiguous lesions. The importance of noninvasive imaging will increase. But invasive diagnostics will continue to exist for many years.

**Before you returned to China in 1999, you worked at the university hospitals of Mainz and later Essen for almost a decade as a young doctor and researcher. In what ways are medicine and cardiology in Germany different from China?**

Ge: It is hard for me to compare, because what I did in Germany was very different from what I do in China now. In Germany, I was an ambitious young researcher and tried to publish as much as I could. When I returned to China, I suddenly had to deal with the everyday reality of cardiology. In my department alone, we have

more than 300,000 outpatients per year. This is an enormous number. It is really hard to cope with such a high workload and it doesn't leave much time for research. What I learned in Germany and what I really consider to be very valuable is to ask the question: Why? Asking why is not only a big driver for research, it is also helpful in clinical routine. Asking why is what I always recommend to my fellows in Shanghai. And I also tell them that they should always respect their mentor, but never trust his opinion. It can sometimes be the case that outspoken experts are wrong.

**Given that cardiology in China has matured, would you still advise younger Chinese doctors to spend time in other countries?**

Ge: Absolutely. It is important to get to know how things are done in other countries. My son is studying medicine, and I have strongly advised him to go to Heidelberg for a fellowship. He can learn a lot in Germany. Germans take many things very seriously. You can learn how to solve a problem and to find the cause of the problem. I remember that I saw an elderly lady at a red light once. I thought, okay, she is having difficulty walking, so I asked her whether I could help her cross the road. She said, "How do you know that there isn't a child in the building on the other side of the road who might see an adult cross the road in spite of the red light?" Germans think differently.

**As in other fields of medicine, there are many new therapeutic methods popping up in cardiology at the moment as a consequence of genetic research and stem cell research. Is this "new cardiology" already playing a role in China?**

Ge: It does exist. But it is far more challenging to get these kinds of study approved in China than it is in many western countries. We have built up a stem cell centre in Shanghai, and we do a lot of research there in animal models. When it comes to clinical studies, though, we are certainly behind countries like Germany.



Medical writer Philipp Grätzel von Grätz, MD, discusses cardiology care in China with Professor Junbo Ge in a Siemens meeting room in Forchheim, Germany.

**One thing that Germany and China have in common is a high acceptance of traditional medicine. Do you include traditional Chinese medicine (TCM) in cardiology care in your hospital?**

Ge: We don't, no. I don't understand much about TCM, so my view may be wrong. But I still think that if you want to prove that a method is useful you have to do clinical studies. You cannot say something is good based on personal experience. If you give patients water, 30 percent will say they feel better afterwards. But this does not make water a therapy. I am not against traditional methods. But I will not actively recommend them.

**How do you see the future of cardiology? Today, we still distinguish between cardiology on the one hand and cardiac surgery on the other. In many places, there is competition between both disciplines, which is certainly not in the interest of the patient.**

Ge: This is indeed a problem, but it is not restricted to cardiology. Today, we cut patients into pieces. We define diseases of the brain, the stomach, the heart, and

so on, without trying to bring things together. I think this is not the right way to go. In the long run, we will have to reconsider medicine. We need to teach young doctors to take a more holistic approach to patients. An important point in this discussion is reimbursement. One of the roots of the current conflict between disciplines is that money is not pooled but paid per therapy. So when I think about the future of cardiology, I think about a different approach to patients, but I would also suggest a different approach to payment.

*Philipp Grätzel von Grätz is a medical doctor turned freelance writer and book author based in Berlin, Germany. His focus is on biomedicine, medical technology, health IT, and health policy.*

**Further Information**

[www.siemens.com/cardiology](http://www.siemens.com/cardiology)

© 2012 by Siemens AG, Berlin and Munich,  
All Rights Reserved

Publisher:

**Siemens AG**

Healthcare Sector

Henkestrasse 127, 91052 Erlangen, Germany

Responsible for Contents: Michael Sigmund

Head, Content & Messages: Thomas Reichert

Chief Editor: Doris Pischitz

Editorial Team: Tanja Berbalk, Emily Smith, Lena Schnabl

Production: Norbert Moser

All at: Henkestrasse 127, 91052 Erlangen, Germany

Phone: +49 9131 84-7529, Fax: +49 9131 84-4411

email: editor.medicalsolutions.healthcare@siemens.com

Design and Editorial Consulting:

independent Medien-Design, Munich, Germany

Art Direction: Horst Moser

Layout: Andreas Brunner, Claudia Diem, Mathias Frisch,  
Irina Pascenko

Editorial Coordination: Christa Krick, Sonja Waldschuk

Photo Editor: Florencia Serrot

All at: Widenmayerstrasse 16, 80538 Munich, Germany

Editorial Consultation, Content and Journalist Network:

Primafila AG, Hornbachstrasse 50, 8034 Zurich, Switzerland

Viviane Egli, Janice Binkert, Simon Froehling

PrePress: Reinhold Weigert, Typographie und mehr ...

Schornbaumstrasse 7, 91052 Erlangen, Germany

Printer: Mediahaus Biering GmbH,

Freisinger Landstrasse 21, 80939 Munich, Germany

Photo Credits:

Cover: Christian Kain

News: Siemens, Hospital Clínic de Barcelona,

IESE Business School

Cover Story: Eoin Ryan, Andres Gomez, Filip Singer,  
Diego Lezama, Iona Hodgson, Markus Marcetic, Hans Sautter,  
Lana Slezic, Christian Kain

Accessible Innovations: Franck Ferville

Cloud Computing: Ed Kashi

Ultrasound: Dana Smith

Molecular Imaging: Erin Trieb

Siemens Remote Service: Dimas Ardian

Hospital IT: Nick Pironio/Aurora

Emergency Department: Lars Hinsenhofen

Vitamin D: Michael Steinberg/Aurora

Fluoroscopy: Tilman Weishart

Essay Series: Orlando Hoetzel, Marek Lapis

Further Reading: Siemens, Anthony Macri,

Frank Schinski/Ostkreuz, Peter Rigaud

Note in accordance with § 33 Para.1 of the German Federal  
Data Protection Law: Dispatch is made using an address  
file which is maintained with the aid of an automated data  
processing system.

We remind our readers that when printed, X-ray films never  
disclose all the information content of the original. Artifacts in  
CT, MR, ultrasound, and DSA images are recognizable by their  
typical features and are generally distinguishable from existing  
pathology. As referenced below, healthcare practitioners are  
expected to utilize their own learning, training, and expertise  
in evaluating images.

Partial reproduction in printed form of individual contribu-  
tions is permitted, provided the customary bibliographical  
data, such as author's name and title of the contribution as  
well as date and pages of *Medical Solutions*, are named.  
The editors request that two copies be sent to their attention.  
The consent of the authors and editors is required for the  
complete reprint of an article. Manuscripts submitted without  
prior agreement as well as suggestions, proposals, and infor-  
mation are always welcome; they will be carefully assessed  
and submitted to the editorial conference for attention.

*Medical Solutions* on the Internet:

[www.siemens.com/healthcare-magazine](http://www.siemens.com/healthcare-magazine)

**DISCLAIMERS:** Practice of Medicine: "The information presented in this magazine is for illustration only and is not intended to be relied upon by the reader for instruction as to the practice of medicine. Healthcare practitioners reading this information are reminded that they must use their own learning, training, and expertise in dealing with their individual patients. This material does not substitute for that duty and is not intended by Siemens Healthcare to be used for any purpose in that regard." Contrast Agents: "The drugs and doses mentioned herein are consistent with the approved labeling for uses and/or indications of the drug. The treating physician bears the sole responsibility for the diagnosis and treatment of patients, including drugs and doses prescribed in connection with such use. The Operating Instructions must always be strictly followed when operating your Siemens system. The source for the technical data are the corresponding data sheets." Trademarks: "All trademarks mentioned in this document are property of their respective owners." Results: "The outcomes achieved by the Siemens customers described herein were achieved in the customer's unique setting. Since there is no "typical" hospital and many variables exist (e.g., hospital size, case mix, level of IT adoption), there can be no guarantee that others will achieve the same results."

## Global Siemens Headquarters

Siemens AG  
Wittelsbacherplatz 2  
D-80333 Munich  
Germany

## Global Siemens Healthcare Headquarters

Siemens AG  
Healthcare Sector  
Henkestrasse 127  
D-91052 Erlangen  
Germany  
Telephone: +49 9131 84-0  
[www.siemens.com/healthcare](http://www.siemens.com/healthcare)

[www.siemens.com/healthcare-magazine](http://www.siemens.com/healthcare-magazine)

Order No. A91CC-00046-M1-7600 | Printed in Germany |  
CC 566 091226.5 | ISSN 1614-2535 | © 09.12, Siemens AG

On account of certain regional limitations of sales rights and service availability, we cannot guarantee that all products included in this brochure are available through the Siemens sales organization worldwide. Availability and packaging may vary by country and is subject to change without prior notice. Some/All of the features and products described herein may not be available in the United States.

The information in this document contains general technical descriptions of specifications and options as well as standard and optional features which do not always have to be present in individual cases.

Siemens reserves the right to modify the design, packaging, specifications, and options described herein without prior notice.

Please contact your local Siemens sales representative for the most current information.

Note: Any technical data contained in this document may vary within defined tolerances. Original images always lose a certain amount of detail when reproduced.

## Local Contact Information

### Asia/Pacific:

Siemens Medical Solutions  
Asia Pacific Headquarters  
The Siemens Center  
60 MacPherson Road  
Singapore 348615  
Telephone: +65 9622-2026

### Canada:

Siemens Canada Limited  
Healthcare Sector  
1550 Appleby Lane  
Burlington, ON L7L 6X7  
Canada  
Telephone + 1 905 315-6868

### Europe/Africa/Middle East:

Siemens AG, Healthcare Sector  
Henkestr. 127,  
91052 Erlangen  
Germany  
Telephone: +49 9131 84-0

### Latin America:

Siemens S.A., Medical Solutions  
Avenida de Pte. Julio A. Roca No 516, Piso 7  
C1067ABN Buenos Aires  
Argentina  
Telephone: +54 11 4340-8400

### USA:

Siemens Medical Solutions USA, Inc.  
51 Valley Stream Parkway  
Malvern, PA 19355-1406  
USA  
Telephone: +1 888 826-9702