A View From Romania

In Romania, Cardiologists Face the Challenge of Benefiting From European Union Membership Without Losing Their Best People

Cardiology departments overwhelmed with patients, crucial shortages of basic facilities, and pitiful salaries for specialists: Romania is a part of Europe struggling to escape from its past, says Radu Capalneanu, MD, PhD, FESC, president of the Romanian Society of Cardiology and head of the cardiology clinic and medical director of the Heart Institute N. Stancioiu, Cluj-Napoca, Romania. He talks to Barry Shurlock, MA, PhD.

As the European Union (EU) expands eastward from its core countries, the disparity in medical practice within its borders grows. In some countries in Western Europe, such as France, waiting lists hardly exist, whereas in former Communist Bloc countries, such as Romania, the hospitals find themselves overwhelmed with patients who must often wait months before seeing doctors. And when these patients do reach the head of the queue, they often see overworked physicians with inadequate resources.

Radu Capalneanu, MD, medical director of the Heart Institute Dr Nicolae Stancioiu, Cluj-Napoca, (Figure 1), who is halfway through his term of office as president of the Romanian Society of Cardiology (RSC), paints a somewhat dispiriting picture of cardiology in his country. “The provision of services in Romania is insufficient, both qualitatively and quantitatively, due to an inadequate supply of equipment, both for diagnosis using computerised tomography, magnetic resonance imaging, gamma cameras, and so on, and treatment.”

He continues, “There is a shortage of surgical equipment, implantable defibrillators, and other electrophysiological devices. And the number of cardiologists in relation to the population is very low—about 900 for 23 million people—and ambulatory units are few in number and poorly...
equipped, so hospital cardiology departments and tertiary centres are overwhelmed. During the last few years, an increasing number of private diagnostic services have emerged, but their effect is limited because their prices are high and their services are not covered by basic medical insurance.”

With such limitations of resources, it may be inevitable that the larger cities, especially those with university cardiology departments, would have the best resources, whereas small towns would generally have very poor facilities. Yet cardiology is a popular speciality in Romania, and one needs very high grades to obtain a national training place.

“Family tradition is a potent factor in career choice,” says Dr Capalneanu. He points out that many of the 60 to 80 physicians who complete their cardiology training each year have a father or a mother who are (or were) a doctor. And, interestingly, women make up 60% of all cardiologists in Romania. As in most countries, young Romanians find cardiology particularly attractive as a route to a job with a high status—though pay is extremely low by European standards, with annual salaries of about €4800 for newly qualified specialists and about €7200 for senior cardiologists. Dr Capalneanu comments, “The development of interventional techniques over the last decades has made cardiology more attractive by what might be termed its semisurgical approach, which gives more professional satisfaction than specialties based on drug-oriented treatment.”

Romania has 6 major centres that offer all aspects of cardiology and cardiothoracic surgery (Figure 2). The capital, Bucharest, has 2 such centres, and the provincial cities of Cluj-Napoca, Timisoara, Iasi, and Tagu Mures each have 1 centre. Bucharest, Constanta, Craiova, Sibiu, and Baia Mar also have major cardiosurgical units with specialist functions such as electrophysiology and vascular surgery.

Very few foreign nationals practise cardiology in the country, and those who do are generally individuals from African and Asian countries who studied in Romania and have stayed on, mainly to work in the private sector. For Romanians who wish to study abroad during their training, few grants are available from the RSC. The recipients of the grants usually work in other European countries such as France, Italy, and the United Kingdom, and the Romanian licensing authorities recognise the experience they gain in such countries. “Given the opportunity, many more cardiologists would probably choose to work abroad for a period, or even permanently,” Dr Capalneanu believes. “Until recently, not many Romanian cardiologists were working abroad, but following the integration of Romania into the EU, they will be able to benefit from the high-quality care, research, and advanced technology available in some foreign hospitals. The real issue here is whether they decide to stay abroad or return to Romania, which has one of the lowest incomes for physicians in Europe.”

Today, English is the most common second language amongst professionals, but Romania has long had links with France, and French used to be widely spoken, especially in the south of the country, although German was often used in Transylvania. Hence, when Daniel Danielopolu, MD, of the University Hospital, Bucharest, founded the RSC in 1947, he did so with the support and cooperation of the French Society of Cardiology. The RSC now has a rising membership of about 1000. It has reciprocal arrangements with its sister organisation, the Romanian Society of Cardiovascular Surgery, so that cardiologists with interests in invasive and interventional techniques belong to both societies. It publishes the Romanian Journal of Cardiology (Revista Română de Cardiologie), which appears, with English summaries, on a sophisticated educational Web site (www.cardioportal.ro), and the society organises an annual congress and many other local conferences and symposia. The RSC is considering plans to publish its journal in English in the future.

Although the RSC joined the European Society of Cardiology in 1972, Dr Capalneanu recalls that his country’s admission to the EU in 2007 required a massive exercise on the part of the RSC and the Romanian Ministry of Health. In advance, they needed to obtain EU recognition of undergraduate, residency, and subspeciality training programmes and install provisions for continuous education compatible with European standards.

Dr Capalneanu sees the effort as worthwhile, and he believes it has opened up new opportunities for Romanian cardiologists, but daily cardiological practice in the country still faces some formidable challenges. Dr Capalneanu explains, “The chronic shortage of effective catheter laboratories for interventional cardiology is one of the main problems facing cardiology in Romania at the moment. Likewise, the small number of centres for cardiac surgery and their limited financial resources lead to long waiting lists for cardiac patients—which explains why so few interventions are performed compared with the EU as a whole.” He continues, “Each year, about 2000 pacemakers are implanted, and there are 4500 percutaneous coronary interventions and 3000 coronary artery bypass procedures. Since 1999, there have been 40 heart transplants. And,” he adds, “another key issue is the great discrepancy between the limited access to these facilities in nonuniversity cities compared with academic centres. Medical services outside hospitals are also poor, so
Dr Rainer Hoffmann started his career in the 1980s working in anaesthesia, and he spent most of his time in intensive care medicine at the Amalie Sieveking Hospital in Hamburg, Germany. Although he did not have the facilities to carry out angioplasty and coronary imaging, the angiograms and colour-coded echocardiograms that a nearby hospital sent back to his department sparked his interest in cardiology, particularly in techniques for opening occluded coronary vessels.

In 1988, deciding to take his interest further, he joined Peter Hanrath, MD, in his echocardiography working group at Aachen University Hospital. Dr Hoffmann lists Dr Hanrath as one of the most inspirational people he has worked with. “Dr Hanrath was the inventor of transeosophageal echocardiography, and he had a tremendous ability to convey his own fascination with new imaging modalities to others,” explains Dr Hoffman.

“We started stress echocardiography testing at the beginning of the 1990s. I was the one who did the first stress echos in Aachen, which was very different at this time from how it is now. The facilities were much less sophisticated, we had no digital data storage, we had to use videotape, the quality was much less, and the protocols were not so well established,” he says. “The studies we did were looking at the diagnostic accuracy, which was not known. At that time, we did not foresee the extensive use of stress echocardiography that we have today.”

In 1994, after completing his board exam in Germany, Dr Hoffmann decided to try something new. He went to the United States to take up a fellowship in interventional cardiology at Washington Hospital Centre, Washington, DC—a position he describes as a “dream come true.” He says, “The Washington Hospital Center was a kind of mecca in interventional cardiology, cardiac transplantation, and so on.” He concludes, “I’m also constantly looking for ways to promote talented young Romanian cardiologists within such organisations as the European Society of Cardiology.”

Dr Capalneanu has many demands on his time, but he has clear ideas about his priorities. “My immediate objective is to revive educational and scientific activities in the provinces, where the reach of the RSC has been limited since the 1989 revolution. I’m also extremely interested in helping our young cardiologists to attend and present their work at international congresses and symposia. It is one of my greatest aspirations that they benefit from grants to help them to make international contacts and attend training sessions in key areas such as cardiac imaging, interventional cardiology, cardiac transplantation, and so on.”

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Dr Rainer Hoffmann is head of the cardiac catheterisation laboratory at Aachen University Hospital, Germany. Emma Wilkinson, BSc, MA, asks him what the future holds for echocardiography and what a young European cardiologist can learn from a placement in the United States.
the vascular response to these devices in humans was almost unknown,” Dr Hoffmann explains. “We used intravascular ultrasound imaging in multiple studies to study stent expansion, the process of in-stent restenosis, and predictors of in-stent restenosis. It was cutting-edge clinical research, and it was absolutely fascinating to be a part of it.” He comments that Dr Leon and Dr Mintz focused intensively on using systematic approaches, and he says, “No doubt, their efforts to always get one step further ahead in our understanding of interventional processes have had a lasting impact on my own approach to clinical research.”

Dr Hoffman continues, “On a more personal basis, I was excited by the extremely friendly way I was introduced into the team in Washington. I would always recommend a clinical research period in the United States to any young German physician.”

After his US stint, Dr Hoffmann moved back to Aachen to combine what he had learnt in imaging techniques and invasive cardiology—a concept he says his US colleagues may find strange. “German physicians tend to have different interests; there’s not such a separation between noninvasive and invasive cardiology as there is in the United States. I believe that if you want to carry out research that requires knowledge in invasive and noninvasive techniques, you have an advantage. In the United States, there are different departments—one responsible for echo, one for magnetic resonance imaging, one for interventional cardiology—and they have less interaction,” he says, “and each is superb in its subject. But the interaction of the different departments in the diagnosis and treatment of patients is more complex in both clinical practice and research.”

Dr Hoffmann can also give many clinical scenarios in which he finds his dual-speciality training useful. “We know nowadays that image fusion will expand our understanding of cardiac disease. Combining information on function and morphology from different imaging modalities allows improved assessment of myocardial disease. Complex interventional procedures in the cath lab are already performed with echo guidance.” Expanding on this, Dr Hoffmann says, “We’ve just started doing interventional procedures on regurgitant mitral valves, which are always done under echo guidance. Someone who has an extensive understanding of interventional procedures as well as noninvasive imaging modalities has an advantage when performing these new procedures.”

He also explains that the myocardial viability studies he has been working on most recently require use of very advanced echo techniques—something that would have been difficult without an in-depth knowledge of different imaging modalities.

“I am currently very interested in myocardial deformation imaging, using resting echo analysis for assessment of myocardial viability.” He adds, “I am convinced we will soon be able to show, from our research in Aachen, that echocardiography-based cardiac deformation imaging is an alternative to magnetic resonance imaging for the assessment of myocardial viability and prediction of function and patient outcome after revascularisation procedures. I hope that it will be introduced into clinical practice on a broad basis.” An example of myocardial deformation imaging is shown in the figure, above.

For the past 6 years, he has been head of the cardiac catheterisation laboratory at Aachen, where he began his cardiology career—a job he says requires much work and attention, because this cath lab performs almost 6000 procedures per year. He is also head of the cardiac ultrasound section of the German Society of Cardiology.

When he can find spare time, he spends it with his family. “I have 2 children, aged 8 and 10, and it’s very difficult to fit in time with them. But I play the piano with them, and football, and sometimes a bit of tennis.” His manic lifestyle certainly hasn’t put him off recommending a career in medicine. “I would be glad if my children should go into cardiology when they grow up,” he says.

Emma Wilkinson is a freelance medical writer.
Perhaps Dr Frits Meijler’s most significant contribution to medical knowledge was his involvement in a seminal description, published in Circulation in 1970, of the total excitation pattern of the human heart. Building up to this, he spent 7 years modifying the preparation he had used to investigate the contractility of the rat heart, so he could use it for studying the excitation pattern of the isolated human heart. “At that point, nobody had seen the excitation pattern of the caudal side of the human heart; nobody knew how it worked. And nobody had seen the excitation of the septum of the heart,” recalls Dr Meijler. “Once we knew the normal excitation pattern, we were able to better understand what was going on—for instance, with Wolff–Parkinson–White syndrome or with myocardial infarction. That paper by Dr Dirk Durrer and our group really had a big impact.” Indeed, this research project had a major effect on Dr Meijler’s career, because around that time, he became professor of cardiology at the State University of Utrecht in the Netherlands. His inaugural lecture was entitled, rather unusually, “Can you make a potato?” The title alludes to the time he spent working on a farm while in hiding from the German occupying forces during World War II. Dr Meijler and his family were Jewish, and his parents had managed to hide him on a large farm out in the country. His mother and father were captured and sent to Auschwitz where they were subsequently murdered.

In October 1942, Dr Meijler helped transport thousands of tons of potatoes from the farm to a waiting ship, using 2 wagons drawn by 2 strong horses. “A potato dropped off the first wagon, and the second wagon demolished it,” he recalls. “The farmer made the horses stop, picked up the broken potato, and gave it to one of the horses to eat. I asked the farmer why he did that when there were so many potatoes in the back of the 2 wagons. Then he said to me, ‘You are right, but can you make a potato?’ He was a religious man, and he was in admiration of everything that was around him in nature.” Dr Meijler says that he never forgot that question because he was unable to answer it. “And then, in my inaugural lecture, I still wondered about that question, because if you can’t make a potato, what hope do you have to make a heart?”

Dr Meijler spent many years investigating the mismatch between the PR intervals of very small animals and very large mammals. His interest in the subject started while he was on sabbatical in Indianapolis, Ind. He noticed that the PR interval adaptation time to changes in atrial stimulation rate has a similar duration to those seen in rats and in humans, despite the large differences in the sizes of their hearts. So, he performed ECGs in a variety of mammals, including dogs, horses, lions, elephants (Figure 1), and whales.
though an elephant heart weighs 30 to 35 kg, whereas a human heart weighs just 0.5 kg. Even more surprisingly, the PR interval in a newborn mouse is only 10 times shorter, at 40 ms, than that of an elephant, despite the tiny size of its heart compared with that of an elephant heart.

Dr Meijler says that he only understood the reason for this mismatch between the volume of the heart and the PR interval 2 years ago, when he was 80 years old. He says it involves a simple piece of math that children learn at school: the length of the side of a cube equals the third root of its volume. “We should have compared the third root of the volume of the heart with the PR interval, which, at a constant velocity of conduction, is effectively a representation of the distance between sinus node and ventricular myocardium,” he explains. “This is still only an approximation, of course, because hearts are not shaped like cubes, but it does explain why the PR interval varies so little between very small hearts and very large ones. I worked on this problem for 25 years before I could understand it. But did it help the world?” he wonders, and concludes, chuckling to himself, “I don’t know. You should do scientific research because you like to do it, not because it will make the world a better place.”

Undeterred by his elephant experiments, Dr Meijler went on to record an ECG from a humpback whale (Figure 3). “Doing this in the wild is not an easy thing to do, despite the size of the target,” he says, with considerable understatement. He first attempted to record from a grey whale in February 1989 when he chartered a boat from San Diego and sailed 1000 miles south to a lagoon on the west coast of Mexico. “Unfortunately, the weather was abysmal. We spent all the money and we stayed there a week,” he recalls. “We made some recordings, but the quality was not good enough.”

So, his team tried again a year later, this time heading north to Newfoundland, where whales sometimes get trapped by surrounding ice during the winter. “While the animal is trapped, you can put electrodes on the whale and make an ECG,” says Dr Meijler, who published his findings in 1992.1 Dr Meijler’s team used needles and suction electrodes to make the recordings (Figure 4). “We learnt that a whale of 30 000 to 35 000 kilos—that is, 4 to 5 times the size of an elephant—has a PR interval that is hardly longer than that of an elephant,” he says.

A few years later, Dr Meijler received a request to be the founding editor of the European Journal of Cardiology (subsequently renamed the European Heart Journal when the European Society of Cardiology launched its own journal). “The European Heart Journal is still going, and that pleases me,” says Dr Meijler.

Dr Meijler left his post as chief of cardiology at University Hospital Utrecht in 1985 to become the scientific director of Interuniversity Cardiology of the Netherlands. He retired in 1993. He has spent the last 3 years writing a book for lay people about his war and research experiences. He hopes to finish it by the end of this year. “Next year, I will definitely really retire,” he says hopefully.

James Butcher is a freelance medical writer.

References
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