Serbia has undergone many changes in recent years since the breakup of Yugoslavia in the early 1990s. In addition to gaining its independence, the country has made advances in health care and cardiology. The Clinical Center of Serbia, where Dr Milan Nedeljkovic works as professor and cardiologist, is the major healthcare institution in Serbia (Figure 1). Commenting on the transition to being a country of only 8 million people, compared with the former Yugoslavia’s 22 million (Figure 2), he says, “It has to affect your work.” But he adds, “It is more than 10 years since the former country fell apart. So, I think that now something like a steady state has been established in all countries involved, and they are working on their own.”

Fortunately for doctors and patients, the changes have seen more money pumped into the healthcare system. “I think that the transition only improved our system,” says Dr Nedeljkovic, “and that nowadays, after the transition, the part of the annual budget that is distributed to healthcare providers is much more than it was 10 years ago. The government is doing a lot of things to not only improve technology and equipment, but also to provide better services to people in this country.”

In Serbia, people pay for health services indirectly. The health service is a state-owned social service, and Serbians pay a percentage of their income every month to the state-owned insurance company. So, when a patient visits the hospital, he or she does not receive a bill.

In the past 5 years, the government has funded up-to-date cardiology procedures, including modern catheter laboratories. “I think that we have the newest equipment that completely fulfils European and US standards now,” Dr Nedeljkovic says. “I think they are completely comfortable with European Society of Cardiology requirements.”

Coronary artery disease represents the main problem facing cardiologists in Serbia. “After Russia,” says Dr Nedeljkovic, “Serbia has the highest prevalence of coronary disease in the country.”

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**Figure 1.** The Clinical Center of Serbia, where Dr Nedeljovic works, is the main healthcare institution in the country.
artery disease in Europe.” He puts this down to historical circumstances and unhealthy lifestyles. Smoking has a very high prevalence, especially in women, and other lifestyle problems also factor in. “I think that people in Serbia do not exercise enough. We have to do a lot of things for promoting a healthy way of living,” Dr Nedeljkovic says. “Also, the diet is greasy food, with a high cholesterol intake.”

Traditional diets can be hard to change, but a concerted effort at health promotion is underway. In 2006, the Serbian Heart Foundation began as a nongovernmental, nonprofit organisation with this aim in mind. It has just become a member of the World Heart Federation and the European Heart Network.

For specialist education, cardiologists can undertake all of their training in Serbia. After finishing medical school, each student does a 4-year speciality in internal medicine to become a doctor of internal medicine. A subspeciality in cardiology follows and takes 2 more years. “At the same time, you are working, and you can choose some field in cardiology that you are interested in,” says Dr Nedeljkovic. He chose to specialise in invasive cardiology and interventional cardiology. “I think that’s the best way to treat the main issue in cardiology: coronary artery disease.”

As yet, Serbia offers no formal training in interventional cardiology. “We are waiting for Europe to define the requirements for training in interventional cardiology,” Dr Nedeljkovic says. “But the Cardiology Society of Serbia does have a working group on interventional cardiology, and I am its general secretary.” Although no official figures exist, he estimates that about 20% of Serbian cardiologists go abroad for some training, primarily to countries in Europe. For some, these periods abroad are short, up to 6 months. Dr Nedeljkovic went to the University of Pittsburgh Medical Center Presbyterian Hospital, Pittsburgh, Pa, from November 2001 to May 2002. “I had some personal contacts with people from the hospital,” he explains, “and some of them are friends of mine.”

Serbia also has good cooperation with Italy. “Many of our doctors from the clinical centre work in Italy, doing invasive and noninvasive cardiology, and they do their training in Milan and Pisa.”

“Cardiology research in Serbia is very active,” says Dr Nedeljkovic. “I think Serbian cardiologists are really leading the way in this part of southeastern Europe, with a number of publications.” Many centres do research in Serbia, with articles being published in all fields of cardiology. Funding for research comes partially from the government. The Ministry of Science funds projects for 4 years, with contracts renewed each year, depending on the success of the work. Industry provides some money, depending on the topic, and some research progresses without specific funding. “Some projects are not funded at all but are just the enthusiastic work of our doctors,” Dr Nedeljkovic says.

Cardiologists have a good life in Serbia, Dr Nedeljkovic believes. “I think it’s a good job and a job of opportunities. You can do what you really like to do. You can do research and everything else. And also, you have a lot of contact with international friends. We participate in all the important cardiology meetings in Europe and the United States.”

As for the future, Dr Nedeljkovic says, “There is nothing special planned for cardiology in Serbia. We will follow the trends for the remainder of the world.” He explains, “I think that we will establish other procedures as they are introduced in other countries.” Despite the recent advances in technology, Serbia has yet to see improvements in survival. Dr Nedeljkovic predicts this could take at least 5 to 10 years. “I hope the improvement of lifestyle modification will have some impact on survival,” he says. “It takes a long time just to change the way people feel about lifestyle modification.”

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The opinions expressed in Circulation: European Perspectives in Cardiology are not necessarily those of the editors or of the American Heart Association.
Climbing the Cardiology Career Ladder: Sweden

A Soft System in a Harsh Climate: Sweden Will Be Offering More Opportunities for Cardiologists, Especially in the North

Sweden tries to follow European guidelines for speciality cardiology training, but it has adapted the recommendations for a “soft system” that gives much credence to personal judgement, according to Per Tornvall, MD, PhD, FESC, president of the Swedish Society of Cardiology and a consultant cardiologist and associate professor of cardiology at the Karolinska University Hospital, Stockholm, Sweden. Barry Shurlock, MA, PhD, reports.

Sweden is a country of 2 worlds: a densely populated southern part, where most of the 9 million inhabitants live, and a larger, thinly populated region to the north that extends beyond the Arctic Circle. It is separated from Norway to the west by mountains that reach a height of more than 2000 m. Despite harsh winters, its people enjoy a life expectancy of 80 years—closer to that of a country bordering the Mediterranean than one in northern Europe. Dr Per Tornvall, president of the Swedish Society of Cardiology, says, “The reasons for this are obscure, but diet and lifestyle are probably important.” He comments, “There has been a dramatic fall in smoking—less than 20% of the middle-aged population now smoke, so lifestyle is an important factor. It’s interesting to compare Sweden with the other Nordic countries. In Denmark, for example, where life expectancy is 77.3 years, they smoke a lot, and they are probably less careful with their health.”

Whatever the explanation, the long life expectancy in Sweden suggests that preventive and clinical cardiology have proven effective. The future might depend on a new speciality training schedule for cardiology introduced on July 1, 2006, based on the recommendations of the European Union and the European Society of Cardiology. As in most other European countries, after obtaining an MD (from 1 of the 6 Swedish medical schools), potential cardiology trainees now spend 3 to 4 years working in internal medicine before finally opting for the speciality.

Dr Tornvall explains, “This may be at a university hospital, or it can be in a small country hospital, as long as the doctors then go on to work for 2 to 3 years in a university hospital. It’s a very flexible system, and during training many interns change their minds about the speciality to go for.” He points out, “Young cardiologists who are not doing well can be steered into other areas—they don’t generally need to be told; they realise it themselves. It’s a very soft system, but it works well.”

Dr Tornvall does not know how the new system will work out. He says, “Previously, you could specialise in cardiology without first doing internal medicine—though many trainees did it anyway. We are busy revising all the training books. In general, the ESC recommendations for training include some good ideas, but what works in one country may not work in another.” He explains, “Having to do a certain number of echocardiograms, for example, doesn’t work everywhere. We mention numbers for such procedures, but it’s not mandatory. For someone training in a country hospital, it would be a waste of resources and not in the interests of the patients.”

No formal system exists in Sweden for obtaining a cardiology training post. Many potential trainees take temporary employment in a clinic for 6 to 9 months, and if it works out well, they will continue with training, which takes 5 or 6 years overall. They then spend another 1 or 2 years in a sub-speciality area of their choice, such as interventional cardiology or electrophysiology. About 50% of Swedish cardiologists...
have subspecialities. Dr Tornvall comments, “You have to be highly motivated. Quite a few trainees do a PhD in an area of interest. This is supposed to take 4 years of full-time research, so training takes more than the normal 7 years, but you can usually mix subspecialty training with research and, in this way, finish training in about 9 years.”

Dr Tornvall spent some time working in the United Kingdom and Australia during his own training. He regrets that, in contrast, most Swedes tend to stay in the hospital in which they had their basic training, rather than move elsewhere in the country or go abroad. He says, “It’s really good to see how they work in other countries—you can learn quite a lot. Funding is not a problem for gaining clinical experience, since temporary jobs as locums can usually be found. And, for research abroad, funding is usually available from government sources or from the Swedish Heart and Lung Foundation.”

The best way to accredit cardiologists at the end of their speciality training presents an issue on which the Swedish Society of Cardiology (SSC) and the Swedish Ministry of Health do not agree, according to Dr Tornvall. “The ministry sets great store by letters of recommendation from the head of the department in which the fellow has trained and from his supervisor, whom he or she sees regularly—in theory, once a month,” he says. “The ministry also recognises the benefits of small examinations to check progress in individual modules of training, although these are not held for cardiology, but it does not accept the 2-day examination run by the SSC, which is based on the interpretation of case notes and a written paper.” Dr Tornvall and his colleagues would like to make SSC accreditation mandatory, though at the moment only 15% to 25% of cardiologists bother to finalise their training by taking the examination. He comments, “Not as many cardiologists take the exam as we would wish—perhaps 5 a year. We don’t know for certain how many cardiologists are trained each year, as there is not a national scheme, but an educated guess would be about 20 to 30. I’ve taken the exam—it’s a little bit tense, and the problem is that, in a small country, if you don’t do well, everyone will know. There have been a few failures, and some of these physicians had been accredited by the ministry.” Dr Tornvall emphasises, “Our aim has been to make this exam mandatory, but those in government don’t agree. They say that a long training should not be assessed by a single examination—we’ve discussed it so many times.”

After completing their training, most cardiologists obtain posts as senior registrars, but, according to Dr Tornvall, “They quite soon become consultants, especially if they have a PhD.” He points out that many specialists born in the 1940s are about to retire, so cardiologists in Sweden should have promising career opportunities in the next few years, especially in smaller hospitals and in the north of the country (Figure 2). Cardiologists seeking jobs from outside Sweden must, of course, learn Swedish, but the country has a good history of employing foreign specialists, especially those fleeing from less liberal regimes in the Middle East, such as Iran and Iraq.

Although all medical vacancies in Sweden must be advertised by law, most departmental heads have clear ideas about whom they would like to appoint, according to Dr Tornvall, who comments, “At the Karolinska Institute, a strong interest in research is necessary as well as an interest in patients. People tend to come here who have ambitions for a career in clinical research. More generally, if you’re not known in your part of Sweden, you will probably be employed at first for a limited time, probably 6 months. Advertisements don’t always get the right people.”

Dr Tornvall’s area of interest in research is the genetics of inflammation, which he considers a more important factor in coronary heart disease than previously thought. His clinical work and research consume most of his time; he admits that he never has enough time to do all he would like outside medicine. He says, “I wish I had more time to play more tennis. Like most Swedes, I enjoy skiing, but I don’t have the time for golf. In the summer, we enjoy 5 weeks of vacation in our holiday home on the West coast. I used to sail, but not any more.”

Barry Shurlock is a freelance medical writer.

Reference

Dr Hamsaraj Shetty, a senior physician with a special interest in stroke at the University Hospital of Wales in Cardiff, believes patients in Wales are putting up with an inadequate service with respect to stroke care. Dr Shetty also fears that Welsh stroke patients have a higher likelihood of dying or becoming disabled than stroke patients elsewhere in the United Kingdom.

His views follow the recent publication of the 2006 National Sentinel Audit for Stroke, which shows that only 28% of patients in Wales receive treatment in a specialised stroke unit, compared with 64% in England and 73% in Northern Ireland.

Tony Rudd, MA, FRCP, chair of the Intercollegiate Stroke Network and associate director of the Royal College of Physicians Clinical Effectiveness and Evaluation Unit, which carried out the survey, has described the situation as “scandalous.”

Dr Shetty says, “I agree totally with Tony Rudd, and so do most of my colleagues in Wales. The situation is clearly very unsatisfactory. I feel frustrated that I am not able to deliver the best possible care for my patients. I and my colleagues in Wales feel demoralised, as we are constantly lagging behind the rest of the United Kingdom.” He says that the audit has identified major gaps in Welsh stroke services. “It is a serious clinical governance issue, because many of our patients are dying or becoming disabled from a potentially preventable or modifiable medical condition.”

Dr Shetty believes the current situation in Wales has arisen because, although stroke represents the leading cause of disability and the third-leading cause of death, the politicians, commissioners, and health trusts do not consider it a priority for healthcare planning and delivery. “This means,” he adds, “that what is accepted as evidence-based care is not being delivered to our patients. Wales does not have a single full-time stroke physician. All the physicians who care for stroke patients in Wales have significant general medical and care-of-the-elderly commitments.” He explains, “Their workload limits their ability to dedicate adequate time to develop and deliver a high-quality stroke service, and the lack of resources has limited the availability of important support services such as neuroradiology and the use of Doppler.

“There are organisations such as the British Geriatrics Society (Wales),” says Dr Shetty, “that formed a Stroke Interest Group in 1998 with the aim of improving stroke services in Wales. The group organises the Welsh Stroke Conferences; members have contributed to the stroke section of the United Kingdom’s National Service Framework, and they have also been working closely with the United Kingdom Stroke Association. They have also met the chief medical officer, and Welsh Assembly members have been approached to seek their support to improve stroke care in Wales.”

The Stroke Interest Group conducted a comprehensive review of stroke services in Wales between August and September 2006. This review identified gaps in services in all the major hospitals in Wales. Some of the local health boards are currently in discussion with trusts and clinicians to implement some of the key elements of an evidence-based stroke service. But Dr Shetty points out, “Lack of resources is likely to be an important limiting factor. The sad fact is that, as things stand, Welsh stroke patients are more likely to die or become disabled than patients elsewhere in the United Kingdom. This was pointed out by the audit.”

Dr Shetty notes that patients admitted to the hospital during the weekend often had to wait until the next working day for a brain scan to determine their treatment (Figure 1); in the
worst instances, such delays can take as long as 72 hours. None of the major hospitals in North Wales could perform computerised tomography of the brain within 3 hours, according to the Stroke Interest Group’s audit of September 2006, although negotiations are ongoing with neuroradiologists to address the issue of early tomography.

“Stroke care in the wider community is also variable,” says Dr Shetty, “but in some areas general practitioners have developed care pathways for referring transient ischaemic attack and stroke patients to a stroke specialist in the local trust.”

He continues, “On the plus side, some hospitals in Wales do deliver an excellent service, and a stroke research and development group is currently being set up under the aegis of the Old People and Ageing Network.” Plans also are underway to develop a training programme for specialist registrars in stroke medicine in Wales.

“But what I really want to see,” says Dr Shetty, “is the development of specialised stroke units in all major Welsh hospitals and the availability of rapid access stroke prevention clinics in all hospitals.” At present, only 8 out of 20 hospitals have specialist stroke units (Figure 2), and only 10 out of 20 hospitals have some form of stroke prevention service.

“The people of Wales and the politicians need to recognise the importance of stroke as a health issue,” Dr Shetty says. “We know what the gaps are in our service, and we also have evidence-based guidelines that, if implemented, will improve the outcomes of our patients. Support for healthcare providers from the Welsh Assembly government to implement the National Service Framework will certainly go a long way.”

He explains, “As a clinician, I would like to see improvements in services as soon as possible, as our patients are dying and becoming disabled unnecessarily. Realistically speaking, it is probably going to take at least a couple of years before we catch up with the rest of the United Kingdom.

“Compared with the United States and other advanced countries in Europe,” Dr Shetty believes, “Wales is doing very poorly, with only 1 hospital currently planning to start a 9 AM-to-5 PM thrombolysis service.” He also points to a very limited availability of interventional treatments.

Asked whether the people of Wales are putting up with third-world medicine in the United Kingdom for stroke care, he says, “We certainly are. The majority of stroke patients are frail and elderly. Their spouses and carers are often equally frail and elderly. They are neither physically capable nor politically powerful to protest about the less-than-optimal care they are receiving.” He continues, “They do not attract the same kind of attention as heart or cancer patients. It is imperative, therefore, that organisations such as the Stroke Interest Group and the Stroke Association fight for their cause, as they are doing.”

Dr Shetty expresses his disappointment that patients in Wales are missing out on treatments that could save them or make them less disabled, and he holds the political devolution process, which gave Wales its own parliament, partly responsible.

Dr Shetty says, “If you look at the progress that has occurred in terms of improvements in stroke care in England, our patients have certainly lost out because of devolution. Lack of political will to make stroke a priority, a delay in implementing the National Service Framework by the health commissioners, and the nonexistence of full-time stroke physicians have all contributed.” And as for the future for stroke care in Wales? “It can only improve,” says Dr Shetty. “I certainly hope that the improvements will happen sooner rather than later.”

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Reference

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