Few cardiologists likely spent their holiday in 2007 moving from place to place on horseback and camping out under the stars with Mongolian nomads. One of these, perhaps the only one, was Dr Geneviève Derumeaux, who says she got a “new view of life” from the experience. This seems typical of her ability to challenge the accepted norms. Deciding in the late 1970s to be a cardiologist, a speciality dominated by men, was a bold move, though she comments, “I won’t say I ever thought it was a challenge. I never imagined that being a woman was a problem. In fact, it was not—at least I hope it was not! I decided not to dress like a man, and to wear colourful dresses and so on. I am now 1 of only 6 female professors in cardiology in France, out of a total of about 143. But I am very confident for women in the future—in Lyon, 75% of first-year students in the medical school are female.”

Dr Derumeaux decided to be a doctor at the age of 4 as a pied-noir (a French national born in colonial Algeria) in the early 1960s in the small town of Frenda, Algeria. Her parents worked as teachers there. After Algeria gained its independence in 1962, most of the doctors fled the bloodshed and chaos, but the authorities had decided to continue with plans for a small local hospital, under the supervision of a nurse. The future cardiologist tagged along as the nurse went about her duties, and she decided it was a good life. She later chose cardiology because she liked the challenge of helping people in acute emergencies, and because she was drawn by the ground-breaking work of Christiaan Barnard, MD, MMed, the South African heart transplantation pioneer. She admits, “At the age of 12, I found him quite attractive!”

After attending medical school at the University of Marseilles, France, Dr Derumeaux spent some time in a hospital at Avignon, France, where she discovered she could follow her passions for emergency medicine and physiology by specialising in echocardiography, which she describes as “still a young technique—only 52 years old!” At the time, many of her colleagues were opting for angioplasty and interventional cardiology, but she—rightly, as it turned out—saw a great future for using quantitative echocardiography, or tissue Doppler imaging (TDI), and she became one of its pioneers.

Essentially, the technique uses the Doppler effect to measure the velocities of any part of the ventricular wall throughout the cardiac cycle (see Figure). Dr Derumeaux says, “One of my main interests in TDI is to study myocardial function noninvasively—specifically, ischaemic myopathy in different experimental settings. We are able to identify clinically, in the various layers of the myocardium, which parts contract, which parts are nearly dead, etc, and generally provide the sort of information that in the 1970s could only
tissue Doppler effect can measure velocities of the ventricular wall. The left upper panel shows velocities and the left lower panel shows strain curves before resynchronisation therapy. The upper and lower right panels show velocities and strain curves after resynchronisation.

Figure.

be obtained from microultrasoundography—that is, by implanting very small piezoelectric crystals in the myocardium—obviously only in experimental settings." She explains, “We can now identify the relaxations and contractions, and also the timings of these processes in various regions of the myocardium. There are a variety of tools to define myocardial function with TDI, such as strain rates and speckle tracking—it’s a sophisticated technique that requires a good deal of understanding of the physiology.”

Dr Derumeaux has worked closely with the manufacturers of TDI equipment to bring it from the research laboratory into the clinic. However, although most of the hospitals in France, and many elsewhere in Europe and in United States, have TDI, only a handful use it routinely in clinical practice. “I think we haven’t reached a plateau with the technique; it’s still a growing trend. Using it clinically requires much more than pushing the right buttons—you have to have a good knowledge of what you are measuring. One specific indication that will, I think, open the field is its use in heart failure, where TDI is able to measure mechanical and electrical asynchrony and identify good responders for resynchronisation therapy.”

Other applications of TDI that Dr Derumeaux has worked on, in association with other cardiologists and surgeons, include differential diagnosis of transmural myocardial infarction, assessment of reperfusion-induced myocardial injury, and the early detection of a form of inherited enzyme deficiency disease with cardiac sequelae. She explains, “TDI is able to detect myopathies very early. With it, we have been able to describe a new phenotype for hypertrophic cardiomyopathy in Fabry disease, which can be treated by enzyme therapy.”

Despite being such a successful woman cardiologist, she admits, with some reluctance, that she does not support the feminist approach to improving the lot of women in medicine. Nor does she strongly support the causes espoused by the now-moribund European Society of Cardiology working group on Women in European Cardiology. She comments, “In a scientific group, you expect to find scientists, not feminists. We can’t expect success because we are women; we have to prove ourselves.” Even so, with 1 exception, all the members of her department are women.

Asked to advise young women doctors, she says, “I have tried to use a lot of humour, to be a woman amongst men, but not to try to be a man. When I was the only woman on the board of the European Society of Echocardiography, it was a great experience—to work with fantastic people who happened to be men.” She continues, “I have enthusiasm and pleasure in what I do, and I try to give it to those who work with me. I think my research has been successful because I have addressed key questions, but I have not been too obsessive. The main guideline has been pleasure, but also to be honest and know my limits. I am always aware of being in a team—and if the team is happy, so am I!”

Dr Derumeaux has achieved a great deal at a relatively young age. She is working hard to establish her new department and to develop a network of links with other departments throughout Europe and in the United States. In 2004, before leaving Rouen, France, she spent 3 months of study leave at the Massachusetts General Hospital, Boston, Mass, working with the Paris-trained Marielle Scherrer-Crosbie, MD, PhD, in the cardiac ultrasound laboratory, with which she hopes to strengthen links.

But one of her major unachieved ambitions involves participating in the creation of a subspeciality of noninvasive cardiac imaging, with entries from both radiology and cardiology. She says, “It’s a matter of building bridges between radiologists and cardiologists. At the moment, radiologists carry out computerised tomography and magnetic resonance imaging and cardiologists perform echocardiography. Future cardiologists will need to be better informed about all the various modalities, so they will be able to make the best choice for the patient, rather than arguing ‘mine is best.’ There need to be changes in departmental structures, with a common platform for imaging in cardiology, but I am aware that it will take a long time, perhaps 5 years or more… It’s perhaps more a matter of breaking down doors than opening them!”

Barry Shuttle is a freelance medical writer.

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European Cardiologists Export Their Skills to India

Cardiac Physicians and Surgeons From the United Kingdom Give Up Their Own Time to Save Lives and Teach Colleagues Across the Globe

University Hospitals of Leicester, United Kingdom, sent a team including cardiac surgeons, cardiologists, and intensive care experts to carry out cardiac surgery on children in a hospital in India. Sanjiv Nichani, MRCP, talks to Mark Nicholls about the visit, the success of the project, and what the future holds for a long-term partnership between the 2 hospitals.

A team of 7 staff—including a cardiologist and cardiac surgeon—from the University Hospitals of Leicester (UHL) gave up their summer vacations this year to spend 2 weeks working in a hospital in India. While there, they operated on 16 children with life-threatening heart conditions.

The United Kingdom–based medical team had not previously visited the Hinduja Hospital in Mumbai (formerly Bombay), India, but the initial success of the partnership suggests the possibility for a long-term collaboration between the hospitals. The idea for the project came from Sanjiv Nichani, MRCP (Figure 1), a senior consultant paediatric intensive care specialist who has worked at UHL for 11 years with young cardiac patients.

He explains, “Based on its population, India should have around 200 specialist heart centres, but it only has 14. In Mumbai, where I am originally from, there is only 1 unit that provides paediatric cardiac intensive care. This is in a city with a population of about 15 million people, and that unit only started a few months ago.”

Dr Nichani says that compared with centres in Delhi, Chennai (Madras), Bangalore, and Cochin, which have very good facilities, Mumbai lies a considerable way behind in the care it can offer to cardiac patients. Dr Nichani trained in India and in the United Kingdom, and then he took his fellowship in paediatric intensive care in the United States, at the Children’s Hospital, Los Angeles, Calif, from 1994 to 1996. He explains, “There is nowhere near enough of what is needed in Mumbai, and because of that, I discussed with my colleagues the possibility of going across there to operate. I went to visit my family in Mumbai in March this year and approached the Hinduja Hospital to ask if they were interested, which they were.”

His close colleague, cardiac surgeon Richard Firmin, FRCS, (Figure 2) went over to India in May 2007 to further explore the possibilities; after that visit, a team from UHL came together. It included consultant cardiologist Dr Ranjit Leanage, MD, FRCP, a perfusionist, an anaesthetist, and 2 cardiac nurses.

By the time the UHL team travelled to Mumbai at the end of July, staff at the Hinduja Hospital had identified a number of children as suitable for surgery. The team started operating on July 30 and had only 1 day off before they finished on August 6. They screened 30 children with congenital heart problems, and 16 children—ages 6 months to 14 years and from all parts of India, including as far away as...
Calcutta—had operations. Dr Nichani identifies the role of the cardiologist as crucial in screening the children before surgery. “We had to choose the right patients, those children who were not beyond repair.”

Dr Nichani says, “We were carrying out very complex open-heart surgery and a whole range of procedures on children whose prognosis was very poor.” These procedures included atrioventricular septal defect repair, ventricular septal defect repair, repair of aortopulmonary window, and Blalock-Taussing shunts. In one case, they operated on a girl aged 2 years 9 months (Figure 3), whose weight had fallen to only 5.8 kg; they carried out an atrioventricular defect repair. “Many of the other children were in a similar state, and it would only have been a matter of time before they would have been in real trouble, with a threat to their lives,” said Dr Nichani. “We lost 1 child soon after surgery, but since we left we have been told that all the other patients are doing very well.”

One of the challenges for the UHL team involved adapting to the equipment at the Hinduja Hospital, a private establishment with a strong focus on charitable work. Dr Nichani said, “There was a huge difference in the equipment and the facilities we are used to. For example, I am used to doing blood gases every 2 to 3 hours, but there I had to use much more clinical judgement, which actually was no bad thing and was more along the lines of the facilities I used when I was training. And Dr Firmin had to adjust to operating in a new environment and with operating instruments with which he was not familiar.”

Dr Nichani said they found these differences particularly evident when they performed cardiopulmonary bypasses. “But what we found amazing was the enthusiasm and the willingness of those at the Hinduja Hospital to learn from our expertise.” Dr Firmin was assisted by local surgeons, and they were sharing his experiences. I was in the intensive care unit, and the local doctors and nurses and the team from UHL looked after patients together. We worked well together, and by the time we left, everybody was good friends. We could not have asked for more.”

Those involved hope that this first visit will lead to a longer-term partnership between UHL and the Hinduja Hospital. “That first visit was just a drop in a very huge ocean, but we are hoping to go back in November or December this year, and in future we may look at going 3 or 4 times a year and operating on as many children as we can. And we also hope to train the local teams to take over performing some procedures.” A teaching programme formed part of this initial visit. Dr Nichani lectured staff on caring for children after cardiac surgery, and Dr Firmin lectured his Indian colleagues on heart surgery.

The UHL team gave up their own time for the project and charged no fees. The Hinduja Hospital paid for their flights and accommodation. Dr Nichani says, “The Hinduja Hospital is looking to set up a paediatric cardiac service. They wanted to know if that was possible, and after our experiences there we were able to tell them that it was definitely feasible.” Dr Nichani enthuses, “We would say the visit was extremely successful and laid the foundation for future, regular trips. Hopefully, the Hinduja partnership will last and lead to other visits, not just in Mumbai. At some stage, the Hinduja Hospital will become self-sufficient, but we will not want to lose the impetus, and we may then be able to look at visiting other hospitals in India to host us.”

Dr Nichani firmly believes that other European-based cardiac specialist teams should consider similar partnerships. “I think the best way to go about it is for a team to adopt a city or a hospital and go there regularly, 3 or 4 times a year, until the local centre is self-sufficient,” he says. He believes that the dearth of good secondary care in India creates the need for an initiative to address this deficiency in paediatric care, with European–Indian partnerships allowing both sides to perform a large amount of work. “The icing on the cake,” he adds, “is that there is an obvious benefit to the local children who otherwise would have very shortened life spans.”

Mark Nicholls is a freelance medical journalist.
The Norwegian Heart and Lung Patient Organisation

A Focus on Another Member of the European Heart Network

The Norwegian Heart and Lung Patient Organisation has an unusual mission in that it builds hospitals and rehabilitation facilities. Indeed, 25% of all open-heart surgery in Norway occurs at the organisation’s hospitals. Knut Magne Ellingsen, MT, the assistant secretary general of the LHL, talks to Robert Short, BSc, about the unique features of this heart foundation.

From their inception, heart foundations set up and led by cardiologists tend to adopt different routes to their goal of health improvement than those set up and led by lay people. Those originating from lay public leadership tend to have more emphasis on the care of people in the community rather than on the education of doctors and research. The Norwegian Heart and Lung Patient Organisation (known as the LHL) serves as a good example of this tendency in patient-driven organisations.

The LHL started in 1943 as the Tuberculosis Aid Organisation to lobby on behalf of tuberculosis patients and their families and to strive for better treatment, improved living conditions, education, and work and health service rights. Over the years, this organisation broadened its interest to heart disease (see Table), and in 1961 its name changed to the Norwegian Heart and Lung Patient Organisation. The LHL’s central principles involve providing “solutions that not only benefit heart and lung disease patients, but also serve to strengthen solidarity in the community.” The LHL has adopted the motto, “Solidarity in health and work.” Their literature declares, “We contribute towards the renewal of the welfare state through our political commitment on behalf of all those suffering from heart and lung disease.”

LHL Activities

The membership of 55,000 makes the LHL Norway’s largest patient organisation. It operates throughout the country through unpaid volunteers at 300 local and country branches. These branches organise local meetings, activities, and networks. Many of the regional offices have a youth counsellor.

The LHL’s ownership of hospitals and rehabilitation centres distinguishes it from most other heart foundations in Europe. It also has a secondary school for the disabled that boasts an employment rate for school leavers of about 80%. And, until recently, the LHL’s income came partly from fruit machines!

With respect to buying, setting up hospitals, and owning them, the LHL steps in where it finds public health services inadequate. The government pays for operations and for drugs. Mr Ellingsen says, “For example, the capacity to send patients by aeroplane to England for surgery. But that was very expensive. So, we decided instead to build our own heart clinic so that patients could have surgery in Norway.”

That clinic—the Feiring Clinic (Figure 1), a specialist hospital for the examination, treatment, and rehabilitation of adult heart patients—opened in 1989. Every year, its staff examines 4000 patients, performs 1100 heart operations, and enrolls 220 patients in rehabilitation programmes. Mr Ellingsen points out, “We treat about 25% of all heart patients receiving open-heart surgery in Norway.”

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<tr>
<th>Table. Life Expectancy and Mortality From Heart Disease in Norway</th>
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<tr>
<td>* Norway has a population of 4.9 million.¹</td>
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<td>* Life expectancy in Norway is 79.1 years on average: 81.7 years for women and 76.4 years for men.</td>
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<td>* For men, life expectancy is more than half a year higher than the Eur-A* average. For women, life expectancy has been below the Eur-A average since 2000.²</td>
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<td>* In 2002, cardiovascular disease accounted for 36% of all deaths in Norway. Norwegians have a lower risk of dying from cardiovascular diseases (with the exception of women aged 45 to 74 years) compared with the Eur-A average.</td>
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<td>* Ischaemic heart disease is the single biggest killer in Norway, causing 17% of all deaths in 2002.</td>
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<td>* For men in the 30- to 59-year age group, the mortality rate has declined below the Eur-A average.</td>
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<td>* The mortality rate for men aged 60 to 74 years continues to decline and is approaching the Eur-A average. Norwegian women aged 45 to 59 years have the same mortality risk as generally seen in people in the Eur-A region.</td>
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<td>* For men and women of 75 years and over, an excess mortality risk of 32% and 14%, respectively, exists compared with the Eur-A average.</td>
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¹ The Eur-A is a reference group of 27 countries designated by the World Health Organisation. They are countries with very low child mortality and very low adult mortality. The Eur-A group comprises Andorra, Austria, Belgium, Croatia, Cyprus, the Czech Republic, Denmark, Germany, Greece, Finland, France, Iceland, Ireland, Israel, Italy, Luxembourg, Malta, Monaco, the Netherlands, Norway, Portugal, San Marino, Slovenia, Spain, Sweden, Switzerland, and the United Kingdom.
here." In 2006, the hospital’s staff examined 4600 patients; 1890 received percutaneous coronary intervention, and 1100 other heart operations took place. More information about all aspects of the LHL’s activities can be found on its Web site (http://www.lhl.no/), which displays much of its content in English as well as Norwegian.

**Income and Fundraising**

About 90% of LHL’s activities receive financing through donations and fundraising. The several hospitals and rehabilitation centres have their own economies. The LHL itself has an income of around 250 million Norwegian Kroner a year (about €31.7 million). “We have our own lottery, and we have a lot of different campaigns. A big campaign last year called ‘Every Step Counts’ encouraged the public to increase their activity levels, but it also raised a lot of money. We are about to start the ‘Women Go Red’ campaign in our country. We make sure people are aware of the problems that women have, but we will also be raising money by schemes related to this campaign over the next few years.”

During the last 15 years, the association’s Heart Lottery has contributed more than 300 million Norwegian Kroner (about €38 million) to the heart and lung cause. Every year, the LHL starts new fundraising campaigns.

**Research**

Although at present very little money from the LHL goes into cardiovascular research, the foundation has begun a large research fund. Mr Ellingsen says, “We get a lot of money through legacies. And we will now use a proportion of that money for research. Maybe we use 1 to 2 million Kroner a year. But, in a few years’ time, we hope to build that up to 15 to 20 million a year for research, equivalent to €1.9 to €2.5 million.” He continues, “The priority initially will be women and heart disease, but there are also already various research projects going on at the heart clinic.”

However, Mr Ellingsen does not feel that the government of his country supports his organisation well. He says, “The government closes doors all the time instead of opening them for us. For example, we have had fruit machines raising money for us for many years. That gave our organisation 20 to 25 million Kroner every year. Since July 1 this year, the government has closed them down, so we will lose that substantial income, amounting to €2.5 to €3.2 million. We now have to find other ways to raise that money.”

Robert Short is a freelance medical journalist.

**References**

