Kiev is a prominent spiritual centre of Eastern Europe and has been well-known as a city of significance for 1500 years. In the year of 882, Prince Oleg Rurikovich made a prophetic pronouncement when he said, “…it will become the mother of all cities of Rus”; soon after, Kiev became the Eastern Slavic political and cultural centre. Kiev Mohila Academy is one of the oldest universities in Eastern Europe. It originated from Kiev Brothers School in 1615, and received the status of an academy in 1658. Kiev was home to the famous physicians V. P. Obraztsov, MD, and N. D. Strazhesko, MD, who were the first to diagnose a patient with a myocardial infarction in 1908.

Cardiological tradition was furthered by Dr Strazhesko, who founded the Institute of Clinical Medicine in Kiev in 1936. The institute was transformed into the Strazhesko Institute of Cardiology, and it is now home for the board of the Ukrainian Society of Cardiology. The Ukrainian Society of Cardiology was founded in 1963, and since then has undertaken numerous initiatives to improve the diagnosis, treatment, and outcomes of patients with cardiovascular diseases. For the last several years, great attention has been paid to educational activities and the implementation of international and national guidelines.

Unfortunately, unfavourable trends in all-cause mortality and in cardiovascular mortality have been observed since the early 1990s, although minor improvements were achieved from 2001 to 2003. In Ukraine, cardiovascular diseases are the main cause of death, accounting for about 62% of total mortality. Ischaemic heart disease claims 66% of cardiovascular mortality, with an incidence of 651 per 100 000 of the population. The prevalence of cardiovascular diseases is extremely high, and has grown from 36 322 per 100 000 in the year 2000, to 59 698 per 100 000 by 2004. This rise is in part due to better diagnostic techniques.

The high prevalence of risk factors in the general population may partially explain such threatening trends. Recent survey data shows that among adults in the age range of 18-64 years, 17.4% of men and 10.1% of women have a body mass index >30 kg/m², about 30% have a sedentary lifestyle, 39% of both men and women have hypercholesterolaemia, and 20.5% of women and 30.3% of men have low HDL cholesterol.

In a population study, a blood pressure of more than 140/90 mm Hg was registered in 30% of adults, and while 79% of those knew that they had hypertension, only 50.5% were taking any antihypertensive treatment, and of these, just 15% have adequately controlled blood pressure. Due to a state programme for hypertension prevention and treatment initiated in 1999, and the implementation of the European World Health Organisation’s Countrywide Integrated Noncommunicable Diseases Intervention (CINDI) project, awareness of hypertension has increased. The result is a 2-fold increase in hypertension prevalence (from 13.4% in 1997 to 27.1% in 2004) due to improvements in the diagnosis of the condition.

In the case of cigarette smoking, the implementation of national health initiatives and a programme entitled “Quit and Win” resulted in a reduction of smoking rates in men from 52% to 48%, but the number of women who smoke is still increasing, and is currently 17.7%. In 2002, the state government initiated the interdisciplinary program “Health of the Nation.”
Improving a Nation’s Cardiac Health

The chief medical officer of Scotland, Harry Burns, MPH, FRCS, FRCP, discussed Scotland’s cardiovascular disease and stroke strategy with Judy Ozkan, BA.

Scotland’s traditional image of glens and lochs, fresh air, and a healthy outdoor lifestyle contrasts starkly with public health statistics that rate the country worst in Western Europe for coronary heart disease (CHD) mortality. Following the establishment of the Scottish Parliament in 1999, responsibility for the health service in Scotland was passed from London to the city of Edinburgh, where the parliament is based, and the policymakers concentrated on areas of greatest concern. In 2002, Scotland’s CHD and Stroke Strategy laid out plans to turn around the country’s position in the heart disease league. After 4 years, the Strategy has delivered some impressive results, and Scotland’s chief medical officer, Dr Harry Burns, answered questions about some of the issues raised by this approach.

**How did Scotland acquire its unenviable position in the European heart disease league?**

This is not down to any one single factor. Historically, lifestyle risk factors such as high levels of smoking, poor diet, and lack of physical activity have all contributed. It is now also clear that there is a strong link between deprivation and mortality from CHD, which is why we have an additional mortality reduction target focused on the most deprived members of our community. All of us, both collectively and individually, have a responsibility for improving Scotland’s poor position in the heart disease league, and can build on the significant improvements already seen in recent years.

**How is Scotland doing compared with the rest of Europe in terms of CHD mortality rates?**

The rate of mortality from CHD for people aged under 75 has fallen by 44% in Scotland since 1995. However, a similar...
drop in mortality across Western Europe means it’s still relatively high. Some parts of Eastern Europe have higher rates of mortality than Scotland and are seeing their mortality rates continue to rise.

In 2002, The Scottish Executive launched a strategy to combat high CHD mortality rates in 2002. Is it working? The Strategy, which covered both CHD and stroke, has resulted in better organised delivery of care for patients with CHD in their local area. We have provided funding to support the development of managed clinical networks in all 15 health board areas, which bring together clinicians, patients, carers, and the voluntary sector to plan and deliver services. We have reduced waiting lists for cardiac interventions, and we now have the shortest waiting times in the United Kingdom. Scottish Ambulance Service personnel have been trained to deliver thrombolytic treatment in ambulances, rapid access chest pain services have been established, the rate of statin prescribing is higher than ever, and we are well on the way to developing a national cardiac patient information system.

What do you consider Scotland’s strengths in fighting the burden of heart disease?
Our collaborative approach between clinicians and patients is one of our major assets. Managed clinical networks are beginning to break down the barriers between primary, secondary, and tertiary care, and also the barriers between doctors, nurses, patients, and their carers. The focus on primary prevention is also a key strength. In 2003, the Scottish Executive published an overarching health improvement document “Improving Health in Scotland: The Challenge.” This set out clearly the action that we needed to take in terms of reducing smoking, improving diet, and increasing physical activity levels. Scotland will be the first part of the UK to introduce a comprehensive smoking ban in enclosed public spaces. We were also the first to have nutritional standards for school meals, a strategy called “Hungry for Success”, that was first published in November 2002. Over the past few years we have also engaged with organisations such as the food industry as a means of influencing behaviour at national level.

What can other European countries learn from Scotland’s approach to fighting CHD?
The key message has to be to demand success and not accept failure. Scotland’s rate of premature mortality 20 to 30 years ago was astronomical. The mortality rates today would have seemed impossible to achieve in 1976, but persistence has paid off. The fact that many countries have lower rates of CVD mortality than Scotland today demonstrates what can be achieved tomorrow. Those countries in Eastern Europe with high and rising mortality can look to us, and know that with the right interventions, and with the right lifestyle changes, they too can beat heart disease.

What effect will the forthcoming smoking ban have on public health?
This measure was introduced as part of the Scottish Executive’s Health and Community Care Bill, and means that smoking in all enclosed public places in Scotland will be banned from 26 March 2006. One immediate pay-off should be a reduction in the rate of smoking and the incidence of respiratory infections. International experience suggests legislation can have a dramatic impact. Around 7000 smokers in Ireland and 188 000 in New York are reported to have given up smoking since the ban was introduced in both those places. It will take time to see the full benefits on rates of cardiovascular disease in the decades to come.

Scotland has been referred to as the “Sick Man of Europe.” Is this still an accurate description?
The “Sick Man of Europe” tag is not helpful. It leads people to expect poor health rather than look for ways to improve it. Some people in Scotland are very healthy, and others are very sick. I want to look behind the top level figures to make sure that everyone in Scotland benefits from good health, and receives the best quality care should they need it, for CVD or any other cause.

Judy Ozkan is a medical journalist and a member of the Medical Journalists’ Association.

References

History of Cardiology: Mackenzie’s Ink Polygraph
Diana Berry writes about Sir James Mackenzie, MD, whose invention of the ink polygraph advanced the study of cardiac dysrhythmias and helped usher in a new era of cardiology.

James Mackenzie was born at his father’s farm of Pictstonhill at Scone, Perthshire, Scotland in 1853. He first attended the village school, and then at the age of 12 was sent to the Perth Academy. This was an unhappy experience, and after 3 years he left to become an apprentice in an apothecary’s shop, where he remained until the age of 20. The following year he entered Edinburgh University, graduating in 1878, and became an MD from that institution in 1882. He spent a year in the Edinburgh Royal Infirmary before moving to Burnley, Lancashire, in England, where he became a partner in a local practice. His work involved medicine, midwifery, and some surgery in a community
where the poor, unsanitary, and overcrowded conditions were clearly a causal factor in many of the ailments he treated. His experience in surgery led to an interest in heart problems, such as the significance of irregularities of the pulse, and also the mechanism of pain caused by neurological disease. Some of his earliest work was on herpes zoster. He always kept detailed notes regarding the ailments he encountered.

Sir James Mackenzie remained in Burnley for 25 years, then moved to London in 1907, where he quickly established a great reputation mainly due to the publication of 2 of his books: The Study of the Pulse in 1902 and Diseases of the Heart in 1913. He was elected a Fellow of the Royal College of Surgeons in 1909, and in 1915 he was both knighted and elected a Fellow of the Royal Society.

During the First World War he acted as consultant to the Military Heart Hospital, and at this time he attributed a soldier’s “disordered action of the heart” to undiagnosed infection rather than physical or mental damage. He returned to the town of St. Andrews, Scotland, in 1918, where he established the St. Andrews Institute for Clinical Research. Here Sir James Mackenzie involved local general practitioners in detailed and long-term recording of patients’ symptoms and diseases, but unfortunately resources ran out, and in 1924 he returned to London.

In the 1860s, Étienne-Jules Marey’s development of the sphygmograph laid the foundation for the work of other physiologists such as Theodor Wilhelm Engelmann (1843-1909) and clinicians such as Karl Friedrich Wenckebach, MD (1864-1940) and Sir James Mackenzie himself. Such work, particularly their findings in respect to the refractory period in the cardiac cycle and the compensatory pause after an extrasystole, was to have far-reaching impacts. This was the first time that the usually innocent character of this phenomenon was demonstrated.

For many years Sir James used various types of sphygmographs and a phlebograph, developed in 1892, in order to study the pulse in veins. Most of these instruments proved unsatisfactory, as the apparatuses were both clumsy and unsuitable for clinical use. The other disadvantage was that these instruments allowed only a very short tracing that arguably might be taken during a period of abnormal heart rhythm.

Thus, in 1902, the ingenious Sir James invented the ink polygraph, with the aid of a Mr Shaw, a Burnley watchmaker. This device allowed 3 simultaneous tracings to be made on a long roll of smoked paper. With this instrument he was able to record and correlate the arterial and jugular pulses concurrently with the beat of the heart itself. He “brought order out of the chaos of cardiac irregularities,” distinguishing the inconsequential from those that were caused by serious organic heart disease.

One positive outcome of his investigations was that his findings altered physicians’ attitudes to abnormal heart sounds and to some abnormalities of the action of the heart. Sir James’ work showed that these were not always cause for alarm. For example, in the early decades of the 19th century, the occurrence of extrasystoles often resulted in the prescription of prolonged bed rest. This had a profound effect on the individual’s future. In Sir James’ opinion, exercise tolerance was an important element in prognosis, reflecting as it did the health of the myocardium, much as we use exercise and stress ECGs today.

In 1906, Arthur Robertson Cushny, MD, professor of Materia Medica and Therapeutics at the University of Michigan in Ann Arbor, visited Sir James in Burnley. Here they “discussed the probability of auricular fibrillation being the cause of irregular heart action in certain cases of ‘nodal rhythm’.” Cushny agreed that “certain cases of small waves recognised in the jugular pulse in one particular case were due to fibrillation of the auricle.” Sir James subsequently advocated the use of digitalis in cases of atrial fibrillation.

On 26th January 1925, Sir James died at his home in Knightsbridge, London, of angina pectoris. He had suffered from this condition for the last 15 years of his life — a disease which he had done so much to elucidate. As he often remarked, “No doctor lives long enough to write a reliable book on prognosis.”

Diana Berry is a medical historian and freelance writer.

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