Heart failure is a major cause of cardiac morbidity and mortality, and due to the demographics of the European population, its incidence is rising continuously. Mortality is still high despite major advances in treatment such as angiotensin-converting enzyme (ACE) inhibitors, β-blockers, aldosterone antagonists, and cardiac resynchronisation therapy, and significant attempts are under way to further improve our management of patients with heart failure.1 However, it would appear that in many cases available treatment options are not being applied effectively.

Underuse of Medication
National surveys of some European countries suggest that the treatment of heart failure in practice differs from that suggested in the respective country’s clinical guidelines, and is characterised by underuse of recommended medications. Comparisons of national surveys suggest that variations occur in the management of heart failure, even though the evidence-based medicine and clinical guidelines in each country are based on the results of the same randomised controlled trials.

To shed light on the current practice of heart failure treatment in Europe, a large pan-European heart survey (EHS-I) on patients hospitalised for suspected or confirmed heart failure was performed in 2000–2001 under the leadership of the European Society of Cardiology (ESC).2,3 A total of 46,788 deaths and discharges were screened across 24 ESC countries, from which 11,327 (24%) patients were enrolled with suspected or confirmed heart failure. Of those enrolled, 47% were women. This survey provided important information on how this disease was diagnosed and treated in a significant number of European general and university hospitals.

Relevance of EHS-I
The large scale EHS-I survey confirmed the findings of national or local registers; that is to say, patients hospitalised for heart failure in Europe are elderly patients (mean age 71), stay on average more than 10 days in hospital, and have a poor outcome, with an in-hospital mortality of 6%. The length of stay in European hospitals is much longer than that observed in US surveys, where it is about 5 days. The fundamentally different health and reimbursement systems on both sides of the Atlantic may represent one possible explanation for this difference between the United States and Europe.

ESC Recommendations not Followed
Another important finding was that diagnosis of heart failure in these centres did not follow ESC recommendations in a number of situations. For example, the evaluation of cardiac function by echocardiography was only performed in approximately 60% of cases. The ejection fraction as determined by echocardiography was preserved or only slightly reduced in nearly 50% of cases.4 Treatment of heart failure in EHS-I was characterised by a massive use (90%) of diuretics, usually a loop diuretic. ACE inhibitors were used in 63% of cases, and there was a limited use (37% on average) of β-blockers.

A closer look at patients with documented reduced systolic function and a presumed indication for treatment with ACE inhibitors and β-blockers revealed that ACE inhibitors were prescribed in about 80% of these patients, while less than 50% received β-blockers. Daily dosages of these drugs remained low, particularly with β-blockers. The predictors of nonprescription of β-blockers were age, and hospitalisation in general medical wards, rather than specialist cardiovascular departments. This suggests that comorbidities, contraindications, and educational gaps played a role in the limited use of β-blockers.

Different Patient Populations
It was notable that the patient population screened and covered in EHS-I revealed that this population differs from those patients enrolled in clinical trials. More specifically, ethnic minorities and females are unrepresented in clinical trials, but in the EHS-I survey these groups constituted a more representative percentage of patients in the general population. In particular, EHS-I suggests that the number
of patients with heart failure and preserved systolic function appears to be larger in the real world than in controlled clinical trials, which tend to include a younger patient population.

Another striking observation of the survey was the heterogeneity in the management and treatment modalities across different centres and countries. The use of echocardiography as a diagnostic tool varied from 20% to 100% across the centres surveyed. Similarly, there was a marked disparity across these centres with regard to the use of ACE inhibitors, and even more so with ß-blockers.

Limitations of EHS-I

Of course, EHS-I has its limitations. Despite its large size by European standards, it included only 116 hospitals. Another limitation is the fact that the centres were not randomly selected; instead, these centres voluntarily participated in the survey. Despite these factors, the first large-scale pan-European survey in patients hospitalised for heart failure provided important information on how the disease is treated across Europe.

It highlights the fact that, in 2000, both diagnosis and treatment did not follow ESC guidelines, in particular those for the identification of cardiac dysfunction and the use of ß-blockers. It also revealed an important heterogeneity in the management of these patients. It appears that distinct medical traditions or perceptions play a role in the management of this disease. Obviously, these observations emphasise the need for continuous educational efforts directed towards the various professionals who take care of these patients, including general practitioners, cardiologists, and nurses.

Advanced outpatient management plans that heavily involve highly trained nurses in Scandinavia and the United Kingdom, have been particularly successful in implementing evidence-based treatment of patients with heart failure. They may serve as a model to be considered in other countries. In this respect the Heart Failure Association of the ESC has instituted a study group to further develop and promote this strategy across Europe.

Moreover, the ESC, the Heart Failure Association of the ESC, and a number of national cardiology societies have given high visibility to the recently updated ESC guidelines.

Will Adherence to Guidelines Deliver Improvements?

Recent local surveys suggest that management of chronic heart failure is improving with a higher rate of prescription of ß-blockers in particular. Recently, EHS-II was completed, and the preliminary results were presented at the ESC meeting in Stockholm, Sweden, in September 2005, and this second survey within the space of 5 years will tell us whether the management of heart failure has improved across Europe during this time.

It is clear there is still a lack of key information on the management of both acute and chronic heart failure in Europe. It is important that future surveys focus on the impact of the educational efforts undertaken in Europe, including the efficacy of various educational approaches.

Moreover, these surveys should be designed to evaluate whether adherence to existing guidelines in the population is associated to an improved outcome similar to observations in controlled clinical trials and selected patient populations. It is to be hoped that the identification of gaps in management, followed by reinforced educational efforts through the dissemination of guidelines, will create a virtuous circle and translate into improved treatment for patients in Europe suffering from heart failure.

Dr Helmut Drexler is a professor of cardiology at Hannover Medical School, Germany, and Dr Michel Komajda is a professor of cardiology at the Hôpital Pitié-Salpêtrière, Paris, France.

References

History of Cardiology: Werner Forssmann, MD

Diana Berry writes about the exploits of a pioneer of cardiac catheterisation, who with great determination persuaded a nurse to help him insert a catheter into his own arm.

Dr Werner Forssmann was born in 1904 in Berlin, Germany, grew up there, and then studied medicine at Friedrich Wilhelm University, Bonn, Germany. After graduation, he spent some years in private practice in a small hospital in Eberswalde until the outbreak of the Second World War, during which he served initially at the front and later as chief surgeon in a military hospital. The experiences he had at the front and in the military hospital had a great impact on his life, and left him an ardent pacifist.

In 1950, he was appointed chief surgeon to the Urological Department at the hospital in the town of Bad Kreusnach and, in 1957, he became chief surgeon to the Evangelical Hospital in Düsseldorf. His autobiography Selbsversuch: Erinnerungen eines Chirurgen provides a fine insight into the mind of a man described by André Cournand in his preface to the book as “a powerful actor, not lacking in pride of self, a man at once disputatious, full of resources and will power and endowed with physical courage, if not with great political perspicacity.”

In February 1929, now a fully qualified doctor, Dr Forssmann was fortunate, through a family connection, to secure work as a surgical intern in the Auguste Victoria Home in Eberswalde, in the state of Brandenburg, north east of Berlin. In the summer of that same year we witness a fine example of both his will power and physical courage or what some, such as his mentor Dr. Richard Schneider, who also worked at the Auguste Victoria Home, might well have considered gross foolhardiness! Dr Forssmann was interested in the work on animals by Claude Bernard described in Physiologie Operative, and the feats of Chauveau and E.J. Marey in 1861, who were the first to achieve measurement and recording of blood pressure from the interior of the heart of a living animal. He was particularly fascinated by old diagrams illustrating their work (Figures 1 and 2).

One particular image made a lasting impression — it showed a man inserting a tube into the jugular vein of a horse. Dr Forssmann writes that he was “so excited by this image that it haunted me day and night.” He was convinced that such an experiment could be attempted on a man using the antecubital rather than the jugular vein, and that this would provide a better and more reliable cardiac diagnostic tool and a method of injecting medication directly into the heart.

With this process clear in his mind, he approached Dr Schneider for his approval, which, understandably, was refused. Thus displaying his characteristic courage (or foolhardiness), Dr Forssmann decided to go ahead with the procedure by experimenting on himself. This would initially involve enlisting the help of a surgical nurse, and to this end he “started to prowl around nurse Gerda Ditzen like a sweet-toothed cat around the cream jug.”

Eventually he persuaded her to be his accomplice, and such was her belief in his ability that she was determined to be the experimentee. When all was prepared, she offered up the required arm, and at this point the wily doctor persuaded her that she should be strapped to the operating table lest the novocaine should cause her to faint. Once she was firmly immobilized, Dr Forssmann slyly administered the anaesthetic into his own arm. Once it had taken effect, he “quickly made an incision, inserted a Dechamps aneurysm needle under the vein, opened it, and pushed the catheter about a foot inside.” Now it was time to face the wrath of the good nurse Gerda, to untie her, and to enlist her help to get him to the x-ray room in the basement. As expected, he found that the catheter had reached the heart.
head of the humerus. Dr Forssmann then pushed it in, almost to the 2-foot mark, until he saw the tip in position in the right ventricle. He then took x-rays as documentary evidence.

Dr Forssmann’s entitlement to recognition as being the first to attempt such an experiment was later disputed by Ernst Unger, MD, at the Rudolf Virchow Hospital in Berlin, who claimed priority in the work he had undertaken in 1912 with colleagues Bleichröder and Loeb, and which had been published that year in the *Klinische Wochenschrift under the general title “Intra-arterial Therapy.”* Dr Forssmann had missed this when searching for relevant literature, and claimed that the title did not indicate any connection with his own work; he also pointed out the lack of supporting x-ray films in Dr Unger’s paper.

Many years would pass before the now standard procedure of cardiac catheterisation would be fully exploited, but recognition of Dr Forssmann’s pioneering work came in 1956, when he shared the Nobel Prize for Medicine and Physiology with André Courmand, MD, and Dickinson Woodruff Richards Jr, MD, both of the Bellevue Hospital, New York. On learning of this honour, Dr Forssmann commented, “I feel like a village parson who has just learned that he has been made bishop.”

Diana Berry is a medical historian and freelance writer.

**References**


---

**European Meetings Update**

**March to May 2006**

**10 March**

*Annual Meeting of the Libyan Cardiac Society*  
Tripoli, Libyan Arab Jamahiriya  
For more information, contact cardioliyya@yahoo.com

**30 March-1 April**

*1st International Conference on Hypertension, Lipids, Diabetes and Stroke Prevention: Interdisciplinary and Multifactorial Approach*  
Paris, France  
For more information, contact strokeprevention@kenes.com

**2-6 April**

*5th International Ascona Workshop on Cardiomyocyte Cell Biology: Stability of Cytoarchitecture and Therapeutic Potential of Heart Muscle Cells*  
Ascona, Switzerland  
For more information, contact info@csf.ethz.ch

**3-5 April**

*Cardiology and Vascular Medicine — Update and Perspective*  
Rotterdam, Netherlands  
For more information, contact congresbureau@erasmusmc.nl

**6-7 April**

*4th European Conference on Management of Coronary Heart Disease*  
Nice, France  
For more information, contact louisa@markallengroup.com

**20-21 April**

*Spring Congress of the Netherlands Society of Cardiology*  
Amsterdam, Holland  
For more information, contact congresbureau@erasmusmc.nl

---

**20 April**

*72nd Annual Meeting of the German Cardiac Society*  
Mannheim, Germany  
For more information, contact kongress@dgk.org

**22-26 April**

*XXVII Annual Congress of the Portugese Society of Cardiology*  
Vilamoura, Portugal  
For more information, contact congresso@mail.spc.pt

**24-27 April**

*Annual Scientific Conference of the British Cardiac Society*  
Glasgow, Scotland, United Kingdom  
For more information, contact enquiries@bcs.com

**25-27 April**

*Annual Meeting of the Swedish Society of Cardiology*  
Linköping, Sweden  
For more information, contact eva.swahn@lio.se

**26-27 April**

*53rd Annual Conference of the Israel Heart Society*  
Tel Aviv, Israel  
For more information, contact team1@congress.co.il

**3-7 May**

*14th Alpe Adria Cardiology Meeting and International Congress of the Croatian Cardiac Society*  
Cavtat-Dubrovnik, Croatia  
For more information, contact www.alpe-adria.biz.hr

**4-6 May**

*Annual Meeting of the Danish Society of Cardiology*  
Snekkersten, Denmark  
For more information, contact dcs@dadlnet.dk
Lessons From the European Heart Survey

Circulation. 2006;113:f25-f28

The online version of this article, along with updated information and services, is located on the World Wide Web at:
http://circ.ahajournals.org/content/113/7/f25.citation