

European Society of Hypertension

Past, Present and Future

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and Krzysztof Narkiewicz**

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Cover: University of Milan, one of the cloisters

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Gdańsk 2011
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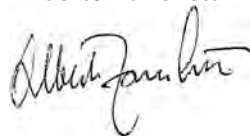
Foreword

Scientific societies are born when growing activities in a given area of science reach a point for which a specific forum is required for the presentation of results and, particularly, for debating current opinions and planning further research. There is no doubt that in the 1980s the explosive growth of our knowledge in hypertension, generated and accompanied by an ever increasing success in treating hypertension, required some organization, some meeting point where this growth could be appraised and further stimulated. The fact that the foundation of the European Society of Hypertension was preceded, rather than followed, by a series of successful meetings testifies to the scientific roots of our Society.

A few years ago, I had remarked that research on hypertension and development of effective and well-tolerated antihypertensive therapies have been among the greatest successes of medicine in the second half of the 20th century. If these successes, and the role of European investigators and clinicians in these achievements, have been at the origin of ESH, then it is obvious that the role of a leading scientific society is something more than just being a forum. It is part of a virtuous circle further stimulating research and facilitating its clinical application.

Having been, so to say, the obstetrician of the ESH, I have been pleased by the great initiative taken by the current ESH President, Prof. Krzysztof Narkiewicz, to assemble information about all the activities run by the ESH during almost 30 years of its life (including the “intrauterine” period between 1983 and 1989). The child born in the 1980s has now come of age, and is taking up new responsibilities as usual unforeseen by its founding fathers. Research is obviously changing: there are new methodologies and consequently new targets as compared to what was investigated in the 1980s and 1990s. Even more importantly, there are new tasks: spreading information through guidelines (critical information rather than uncritical prescriptions), raising new generations of investigators through schools and research grants, stimulating medical excellence through clinical centres of excellence in every European country, promoting and conducting independent trials to improve strategies of antihypertensive therapy and cardiovascular prevention, and finally helping National Health Services and European health policy to be guided by the best scientific evidence and wisdom. This nice booklet witnesses the success of ESH in approaching all these new tasks.

Alberto Zanchetti



A brief history of the society

In 1978, in response to the increasing attendance at its biennial scientific meetings, the International Society of Hypertension (ISH), then under the Presidency of Alberto Zanchetti, decided to try annual meetings, which were held in Göteborg in 1979, in New Orleans in 1980, in Milan in 1981, and in Mexico City in 1982. After Mexico City the ISH decided to go back to biennial meetings, but encouraged European colleagues to initiate complementary activities on a continental basis. Hence, Alberto Zanchetti and his colleagues initiated a series of European Hypertension Meetings in Milan in the years when the ISH did not hold scientific meetings.

“Early Milan Meetings”

The first meeting was held during 29th May–1st June 1983 in the historical surroundings of the University of Milan central building (formerly the Ospedale Maggiore founded by Francesco Sforza, Duke of Milan, in the 15th century). The activities were organized by a European Programme Committee with Alberto Zanchetti as Chairman, Giuseppe Mancina as Secretary, with the collaboration of Fritz Bühler, Lennart Hansson, Ian Robertson and Peter Sever. The meeting was an immediate success, with 494 abstracts received and 990 experts from 40 countries attending. Since this initial convention, the poster sessions became a special attraction of the Milan meetings, because of the magic atmosphere of the ancient cloisters where posters were displayed and actively discussed.

The Second European Meeting on Hypertension was again held in Milan, on 9th–12th June 1985, under the guidance of the European Programme Committee (A. Zanchetti, D. Ganten, L. Hansson, G. Mancina, J.I.S. Robertson, P. Sever), with growing success (593 abstracts received, 1300 experts from 42 countries attending). The third meeting was held on the University of Milan premises during 14th–17th June 1987, with an ever-increasing number of abstracts submitted (638) and 1800 experts from 45 countries in attendance, and, for the first time, a substantial participation of investigators from Eastern Europe.

These early Milan meetings proved to be enormously successful, blending high quality science, emphasis on clinical hypertension research, and excellent organization in the friendly academic atmosphere of Milan University.

Establishment of the European Society of Hypertension

The need for a European Society of Hypertension (ESH) was demonstrated by the success of the Milan meetings, among other factors. In May 1988, the Scientific Council of the International Society of Hypertension expressed a positive view towards supporting structured European hypertension initiatives. The ESH was created by the European experts most involved in the previous Milan meetings on

February 24, 1989, and a first Scientific Council established, with Willem Birkenhäger as the first ESH President. Thus, the 4th European Hypertension Meeting in Milan was the first to be organized under the auspices of the ESH. Much effort was given to make the ESH a true sister society of the ISH. The 1989 meeting was regarded as a joint activity of the two Societies. ESH by-laws and objectives were modeled after those of the ISH. Close cooperation between the two societies has existed since the ESH was first formed. For example, all European members of the ISH were automatically granted membership in the ESH, if desired. The *Journal of Hypertension*, the official journal of the ISH, was adopted by the ESH as its official journal.

The links with the ISH were of course also very close on a personal level. Professor Willem Birkenhäger, the first president of the ESH, had served as vice-president of the ISH just a few years previously. Professor John Reid, the second president of the ESH, was a member of the scientific council of the ISH. Professors Alberto Zanchetti, Lennart Hansson, Peter van Zwieten and Giuseppe Mancia all served as presidents of the ESH, and had previously served as presidents of the ISH.

Meetings of the European Society of Hypertension

Until 1999 the meetings of the ESH were held on a regular biennial basis at the University of Milan, with an ever expanding attendance (Table 1).

Table 1. ESH meetings organized on biennial basis in Milan.

Meeting	Date	Abstracts received	Participants	Countries
Fourth	18 th –21 st June 1989	943	2500	51
Fifth	7 th –10 th June 1991	787	2600	68
Sixth	4 th –9 th June 1993	845	2700	70
Seventh	9 th –12 th June 1995	942	2750	76
Eighth	9 th –12 th June 1997	878	3705	74
Ninth	11 th –15 th June 1999	1160	4340	78

Because of the continuously growing level of interest in the ESH meetings, with attendees coming from all countries of Europe (including — especially since 1989 — a large participation of experts from Eastern European countries) as well as from North Africa and the Middle East, the Asian-Pacific countries and the Americas, in 1999 the ESH decided to hold annual meetings rather than biennial. Since then, the annual meeting is held in Milan every second year (in odd-numbered years) and in other European cities on alternate (even-numbered) years. However, if an ISH meeting is to be held in Europe, the ISH and the ESH meetings are arranged jointly for that year.

The annual meetings have continued to demonstrate the mounting popularity of the ESH and the strength of European research on hypertension. Increasing attendance forced the Milan meetings to leave the beautiful, but mostly limited space at the University of Milan for the wider premises of the Milan City Fair. Dates, locations, abstracts received, and attendance to each meeting since 2000 are listed below (Table 2).

Table 2. ESH meetings organized on annual basis.

Meeting	Date	Abstracts	Participants	Countries
Tenth	Göteborg, 29 th May–3 rd June 2000	1180	3275	69
Eleventh	Milan, 15 th –18 th June 2001	1200	5003	65
Twelfth (with ISH)	Prague, 23 rd –27 th June 2002	1920	7680	86
Thirteenth	Milan, 20 th –24 th June 2003	1253	4530	78
Fourteenth	Paris, 13 th –16 th June 2004	1564	8029	116
Fifteenth	Milan, 17 th –21 st June 2005	1474	7241	93
Sixteenth	Madrid, 12 th –16 th June 2006	1613	5722	95
Seventeenth	Milan, 15 th –19 th June 2007	1538	5580	89
Eighteenth (with ISH)	Berlin, 14 th –19 th June 2008	2620	8624	96
Nineteenth	Milan, 12 th –16 th June 2009	1734	5169	99
Twentieth	Oslo, 18 th –21 st June 2010	1890	5771	97

The ESH meetings have also seen the occasion of convening a large number of Satellite Symposia, and have been an authoritative forum for discussion of many new anti-hypertensive agents and treatment strategies developed in the last 30 years. In 1999, WHO-ISH guidelines were first presented at the ESH meeting in Milan, as was the case for the 2003 and 2007 ESH-ESC guidelines and, in 2009, the ESH guidelines reappraisal document. Some of the major trials for anti-hypertensive treatment were first presented at ESH meetings (1997 Syst-Eur; 2001 ELSA, 2003 SCOPE, 2004 VALUE, 2005 FEVER). Also, other specific ESH Guidelines, such as the

**Photo 1.** First European Meeting on Hypertension (Milan, 1983): Alberto Zanchetti at the opening ceremony

first recommendations on office, home and ambulatory blood pressure monitoring (2003), the updated guidelines on home blood pressure monitoring (2007), the ESH recommendations on BP measurement in children (2009) and the ESH — ERS recommendations on the management of patients with hypertension and obstructive sleep apnea (2009–2011), were first presented at the ESH Milan meetings. This will also be the case concerning incoming and updated ESH guidelines on the use of ambulatory blood pressure monitoring (2011).



Photo 2. Second European Meeting on Hypertension (Milan, 1985): Lennart Hansson and Alberto Zanchetti cutting the cake



Photo 3. Second European Meeting on Hypertension (Milan, 1985): a view of participants in the University of Milan courtyard during the opening ceremony



Photo 4. Second European Meeting on Hypertension (Milan, 1985): a round table in the Aula Magna



Photo 5. Second European Meeting on Hypertension (Milan, 1985): crowded Aula Magna



Photo 6. Second European Meeting on Hypertension (Milan, 1985): official dinner in the courtyard of Palazzo del Senato



Photo 7. Third European Meeting on Hypertension (Milan, 1987): entrance to the University



Photos 8 and 9. Third European Meeting on Hypertension (Milan, 1987): Orchestra and Choir of la Scala giving a performance of Bach's St. Matthews' Passion in the Church of St. Mark, especially for the Third Meeting



Photo 10. Fourth European Meeting on Hypertension (Milan, 1989): First ESH President W. Birkenhäger at the podium



Photo 11. Fourth European Meeting on Hypertension (Milan, 1989): the opening of the meeting



Photo 12. Fourth European Meeting on Hypertension (Milan, 1989): the reception in the University courtyard



Photo 13. Fourth European Meeting on Hypertension (Milan, 1989): satellite symposium "Hypertension and ischemic heart disease". John L. Reid (ESH President 1991–1993) — second from the right



Photo 14. Sixth European Meeting on Hypertension (Milan, 1993): a poster session in the University Cloisters



Photo 15. The Satellite Symposium to the Seventh European Meeting on Hypertension "Metabolic disturbances in arterial hypertension" (Gdańsk, Poland, May 1995) organized by Prof. Barbara Krupa-Wojciechowska (sitting in the middle)



Photo 16. The Satellite Symposium to the Seventh European Meeting on Hypertension "Metabolic disturbances in arterial hypertension" (Gdańsk, Poland, May 1995): Peter Sleight and Alberto Zanchetti



Photo 17. Seventh European Meeting on Hypertension (Milan, 1995): Giuseppe Mancía (ESH President 1999–2001), Peter A. van Zwieten (ESH President 1997–1999) and Alberto Zanchetti (ESH President 1993–1995)



Photo 18. Lars H. Lindholm (ESH Secretary 1989–1997)



Photo 19. Eleventh European Meeting on Hypertension (Milan, 2001): the reception in the courtyard



Photo 20. Joint ISH/ESH meeting in Prague in 2002: Jose Rodicio (ESH President 2001–2003) giving Presidential Lecture



Photo 21. Joint ISH/ESH meeting in Prague in 2002: Lennart Hansson (ESH President 1995–1997) presenting the SCOPE study



Photo 22. Joint ISH/ESH meeting in Prague in 2002: Two doyens of world hypertension coming from both sides of the Atlantic: Michel Safar and Stevo Julius



Photo 23. Thirteenth European Meeting on Hypertension (Milan, 2003): a round table

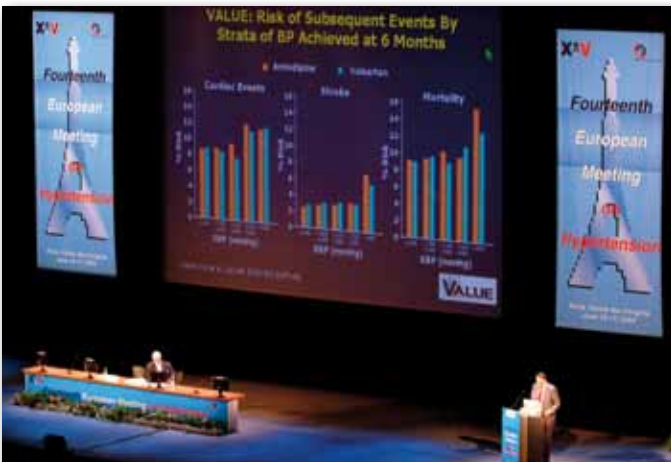


Photo 24. Fourteenth European Meeting on Hypertension (Paris, 2004): Presentation of the VALUE trial



Photo 25. Third Mediterranean Meeting on Hypertension and Atherosclerosis (Turkey 2006) organized by Prof. Serap Erdine



Photos 26–28. Seventeenth European Meeting on Hypertension (Milan, 2007): The opening ceremony



Photos 29–30. Seventeenth European Meeting on Hypertension (Milan, 2007): Presentation of the 2007 ESH/ESC guidelines for the management of arterial hypertension



Photo 31. Central European Meeting on Hypertension and Cardiovascular Disease Prevention (Kraków, Poland, October 2007) endorsed by the ESH and organized by Prof. Kalina Kawecka-Jaszcz



Photo 32. Nineteenth European Meeting on Hypertension (Milan, 2009): The opening ceremony



Photos 33–34. Nineteenth European Meeting on Hypertension (Milan, 2009): Jose Rodicio and Peter van Zwieten receiving ESH Honorary Membership



Photo 35. ESH Award ceremony during the 20th European Meeting on Hypertension (Oslo, 2010)



Photo 36. 20th European Meeting on Hypertension (Oslo, 2010): closing ceremony

ESH Scientific Councils

The ESH Scientific Council has the duty of supervising all affairs of the Society. The ESH Scientific Council is formed by elected members (including office bearers), by ex-officio members and by non-voting executive officers nominated by the Council for specific matters.

Office bearers of the Society are: the President, the Vice-President, the Secretary, the Treasurer and the Officer at Large. Office bearers are elected at the time of a General Assembly. The President serves for a two-year term and subsequently remains in the ESH Scientific Council for two more years as immediate Past-President.

Ex-officio voting members of the ESH Scientific Council are: a) a member designated by the International Society of Hypertension, and b) the Chairman of the Working Group on Hypertension and the Heart of the European Society of Cardiology.

The ESH Scientific Council appoints executive officers with specific responsibilities including: 1) educational activities; 2) Clinical Hypertension Specialist activities; and 3) coordination of Working Group activities.

Officers and members of the 1989–2013 ESH Councils are listed below.

1989–1991

President:	W.B. Birkenhäger (The Netherlands)
Vice-President:	J.L. Reid (UK)
Secretary:	L.H. Lindholm (Sweden)
Treasurer:	H.R. Brunner (Switzerland)
Officer-at-large:	A. Zanchetti (Italy)
Members:	A. Amery (Belgium) L. Hansson (Sweden) A.J. Man in 't Veld (The Netherlands) P. Meyer (France) Y. Postnov (USSR) L.M. Ruilope (Spain) T. Unger (Germany)
Ex-officio:	G. Mancia (Italy) for the ISH J.I.S. Robertson (Belgium) for the ESC

1991–1993

President:	J.L. Reid (UK)
Vice-President:	A. Zanchetti (Italy)
Secretary:	L.H. Lindholm (Sweden)
Treasurer:	A.J. Man in 't Veld (The Netherlands)
Officer-at-large:	L. Hansson (Sweden)
Immediate	
Past President:	W.B. Birkenhäger (The Netherlands)
Members:	A. Amery (Belgium) P. Meyer (France) Y. Postnov (USSR) L.M. Ruilope (Spain) T. Unger (Germany) B. Waeber (Switzerland)
Ex-officio:	G. Mancia (Italy) for the ISH P. Sleight (UK) for the ESC

1993–1995

President:	A. Zanchetti (Italy)
Vice-President:	L. Hansson (Sweden)
Secretary:	L.H. Lindholm (Sweden)
Treasurer:	A.J. Man in 't Veld (The Netherlands)
Officer-at-large:	L.M. Ruilope (Spain)
Immediate	
Past President:	J.L. Reid (UK)
Members:	P. Meyer (France) Y. Postnov (Russia) P. Sleight (UK) J. Staessen (Belgium) T. Unger (Germany) B. Waeber (Switzerland)
Ex-officio:	P.A. van Zwieten (The Netherlands) for the ISH G. Mancia (Italy) for the ESC

1995–1997

President:	L. Hansson (Sweden)
Vice-President:	P.A. van Zwieten (The Netherlands)
Secretary:	L.H. Lindholm (Sweden)
Treasurer:	A.J. Man in 't Veld (The Netherlands)
Officer-at-large:	L.M. Ruilope (Spain)
Immediate Past President:	A. Zanchetti (Italy)
Members:	G. Mancia (Italy) P. Meyer (France) Y. Postnov (Russia) P. Sleight (UK) J. Staessen (Belgium) T. Unger (Germany) B. Waeber (Switzerland)
Ex-officio:	K.H. Rahn (Germany) for the ISH P. Lund Johansen (Norway) for the ESC

1997–1999

President:	P.A. van Zwieten (The Netherlands)
Vice-President:	G. Mancia (Italy)
Secretary:	T. Hedner (Sweden)
Treasurer:	B. Waeber (Switzerland)
Immediate Past President:	L. Hansson (Sweden)
Members:	R. Cífková (Czech Republic) D.L. Clement (Belgium) C. Farsang (Hungary) H. Haller (Germany) A. Heagerty (UK) J.M. Mallion (France) J.L. Rodicio (Spain) P. Sleight (UK)
Ex-officio:	K.H. Rahn (Germany) for the ISH E. Agabiti Rosei (Italy) for the ESC

1999–2001

President:	G. Mancia (Italy)
Vice-President:	J.L. Rodicio (Spain)
Secretary:	R. Cífková (Czech Republic)
Treasurer:	W. Kiowski (Switzerland)
Officer-at-large:	J.M. Mallion (France)
Immediate	
Past President:	P.A. van Zwieten (The Netherlands)
Members:	D.L. Clement (Belgium) S. Erdine (Turkey) C. Farsang (Hungary) H. Haller (Germany) A.M. Heagerty (UK) T. Hedner (Sweden) S.E. Kjeldsen (Norway) P. Sleight (UK)
Ex-officio:	K.H. Rahn (Germany) for the ISH E. Agabiti Rosei (Italy) for the ESC

2001–2003

President:	J.L. Rodicio (Spain)
Vice-President:	J.M. Mallion (France)
Secretary:	R. Cífková (Czech Republic)
Treasurer:	W. Kiowski (Switzerland)
Officer-at-large:	A.M. Heagerty (UK)
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Past President:	G. Mancia (Italy)
Members:	D.L. Clement (Belgium) S. Erdine (Turkey) C. Farsang (Hungary) H. Haller (Germany) T. Hedner (Sweden) S.E. Kjeldsen (Norway)
Ex-officio:	A. Mimran (France) for the ISH P.A. van Zwieten (The Netherlands) for the ESC

2003–2005

President:	A.M. Heagerty (UK)
Vice-President:	J.M. Mallion (France)
Secretary:	R. Cífková (Czech Republic)
Treasurer:	W. Kiowski (Switzerland)
Officer-at-large:	S.E. Kjeldsen (Norway)
Immediate	
Past President:	J.L. Rodicio (Spain)
Members:	S. Erdine (Turkey) C. Farsang (Hungary) H. Haller (Germany) T. Hedner (Sweden) A.J. Manolis (Greece) K. Narkiewicz (Poland) H.A.J. Struijker Boudier (The Netherlands)
Ex-officio:	A. Dominiczak (UK) for the ISH D.L. Clement (Belgium) for the ESC
Executive Officers:	E. Agabiti Rosei, Coordinator of Working Group activities G. Mancia, Chairman of the ESH Educational Committee

2005–2007

President:	S.E. Kjeldsen (Norway)
Vice-President:	S. Erdine (Turkey)
Secretary:	K. Narkiewicz (Poland)
Treasurer:	W. Kiowski (Switzerland)
Officer-at-large:	H.A.J. Struijker Boudier (The Netherlands)
Immediate	
Past President:	A.M. Heagerty (UK)
Members:	E. Ambrosioni (Italy) A. Dominiczak (UK) from 2006 S. Laurent (France) A.J. Manolis (Greece) P. Nilsson (Sweden) from 2006 J. Redon (Spain) R.E. Schmieder (Germany) from 2006 M. Viigimaa (Estonia)
Ex-officio:	L.H. Lindholm (Sweden) for the ISH G. Grassi (Italy) for the ESC
Executive Officers:	E. Agabiti Rosei (Italy), Coordinator of Working Group activities G. Mancia (Italy), Chairman of the ESH Educational Committee R. Cífková (Czech Republic), Secretary of the ESH Educational Committee



Photos 37–42. ESH Scientific Council Meeting in Gdańsk in November 2005. Lech Walesa, former President of Poland, with Giuseppe Mancía (ESH President 1999–2001), Anthony M. Heagerty (ESH President 2003–2005), Sverre E. Kjeldsen (ESH President 2005–2007), Stephane Laurent (ESH President 2007–2009), Krzysztof Narkiewicz (ESH President 2009–2011), and Josep Redon (ESH President 2011–2013)



Photo 43. ESH Educational Committee Meeting in Camogli in 2005

2007–2009

President:	S. Laurent (France)
Vice-President:	H.A.J. Struijker Boudier (The Netherlands)
Secretary:	K. Narkiewicz (Poland)
Treasurer:	M. Burnier (Switzerland)
Officer-at-large:	J. Redon (Spain)
Immediate Past President:	S.E. Kjeldsen (Norway)
Members:	E. Ambrosioni (Italy) A. Coca (Spain) A. Dominiczak (UK) M.H. Olsen (Denmark) A.J. Manolis (Greece) P. Nilsson (Sweden) R.E. Schmieder (Germany) M. Viigimaa (Estonia)
Ex-officio:	L.H. Lindholm (Sweden) for the ISH R. Fagard (Italy) for the ESC
Executive Officers:	E. Agabiti Rosei (Italy), Coordinator of Working Group activities G. Mancia (Italy), Chairman of the ESH Educational Committee R. Cifková (Czech Republic), Secretary of the ESH Educational Committee



Photo 44. ESH Educational Committee in Porto San Stefano, Italy in 2007

2009–2011

President:	K. Narkiewicz (Poland)
Vice-President:	J. Redon (Spain)
Secretary:	P. Nilsson (Sweden)
Treasurer:	M. Burnier (Switzerland)
Officer-at-large:	A. Dominiczak (UK)
Immediate	
Past President:	S. Laurent (France)
Members:	E. Ambrosioni (Italy)
	M. Caulfield (UK)
	A. Coca (Spain)
	M.H. Olsen (Denmark)
	A.J. Manolis (Greece)
	R.E. Schmieder (Germany)
	H.A.J. Struijker Boudier (The Netherlands)
	M. Viigimaa (Estonia)
Ex-officio:	L.H. Lindholm (Sweden) for the ISH from 2009 to 2010
	A.M. Heagerty (UK) for the ISH from 2010
	S. Erdine (Turkey) for the ESC

Executive Officers:

E. Agabiti Rosei (Italy), Coordinator of Working Group activities
 G. Mancia (Italy), Chairman of the ESH Educational Committee
 R. Cífková (Czech Republic), Secretary of the ESH Educational Committee
 D. Clement (Belgium), ESH representative for contacts with the EU officers



Photo 45. The ESH Council in Tallinn (Estonia), October 22, 2010: meeting with Prime Minister Mr. Andrus Ansip

2011–2013

President:	J. Redon (Spain)
Vice-President:	A. Dominiczak (UK)
Secretary:	P. Nilsson (Sweden)
Treasurer:	M. Burnier (Switzerland)
Officer-at-large:	M. Viigimaa (Estonia)
Immediate	
Past President:	K. Narkiewicz (Poland)
Members:	E. Ambrosioni (Italy) M. Caulfield (UK) A. Coca (Spain) M.H. Olsen (Denmark) S. Laurent (France) R.E. Schmieder (Germany) C. Tsioufis (Greece) P. van de Borne (Belgium)
Ex-officio:	A.M. Heagerty (UK) for the ISH A.J. Manolis (Greece) for the ESC

Executive Officers:

G. Parati (Italy), Coordinator of Working Group activities
G. Mancia (Italy), Chairman of the ESH Educational Committee
R. Cifková (Czech Republic), Secretary of the ESH Educational Committee
S. Erdine (Turkey), Secretary of the ESH Clinical Hypertension Specialist Committee
D. Clement (Belgium), ESH representative for contacts with the EU officers

Honorary members and awardees

The ESH has established a number of awards listed below. Furthermore, it gives honorary membership to scientists who have made extraordinary contributions to research in hypertension or who have given exceptionally important support to the activities of the Society.

Björn Folkow Award and Lecture

Established by the ESH with the generous collaboration of Astra Zeneca in 1989, and it continues to be supported by Astra Zeneca. Presented to a person or persons who have carried out original research in physiology that has contributed to our understanding of the pathogenesis of hypertension.

- 1989 James Conway (Oxford, UK)
- 1991 Martin A.D.H. Schalekamp (Rotterdam, The Netherlands)
- 1993 Michael J. Mulvany (Aarhus, Denmark)
- 1995 Paul I. Korner (Woolwich, Australia)
- 1997 Giuseppe Mancina (Milan, Italy)
- 1999 Thomas Unger (Berlin, Germany)
- 2000 Michael O'Rourke (Darlinghurst, Australia)
- 2001 Thomas F. Lüscher (Zurich, Switzerland)
- 2003 Friedrich C. Luft (Berlin, Germany)
- 2004 Robert Fagard (Leuven, Belgium)
- 2005 Hermann Haller (Hannover, Germany)
- 2006 Anthony M. Heagerty (Manchester, UK)
- 2007 Carl Erik Mogensen (Aarhus, Denmark)
- 2008 Anna F. Dominiczak (Glasgow, UK)
- 2009 Guido Grassi (Milan, Italy)
- 2010 Ernesto Schiffrin (Montreal, Canada)
- 2011 Peter M. de Leeuw (Maastricht, The Netherlands)

Alberto Zanchetti Lifetime Achievement Award

Established by the ESH in 1995; presented to a scientist with life-long high quality scientific research in the field of hypertension.

- 1995 Yuri V. Postnov (Moscow, Russia)
- 1997 Hans R. Brunner (Lausanne, Switzerland)
- 1999 Michel Safar (Paris, France)
- 2001 Peter A. van Zwieten (Amsterdam, The Netherlands)
- 2003 Anthony F. Lever (Glasgow, UK)

- 2004 Wilhelm H. Birkenhager (Rotterdam, The Netherlands)
- 2005 Peter Sleight (Oxford, UK)
- 2006 Eberhard Ritz (Heidelberg, Germany)
- 2007 Karl Heinz Rahn (Münster, Germany)
- 2008 John Chalmers (Sydney, Australia)
- 2009 Pierre Corvol (Paris, France)
- 2010 Stevo Julius (Ann Arbor, USA)
- 2011 Allyn L. Mark (Iowa City, IA, USA)

ESH Honorary Membership

Established by the ESH in 2001, to be given to a scientist who has made extraordinary contributions to research in hypertension or who has given exceptionally important support to the activities of the Society.

- 2001 Peter Sleight (Oxford, UK)
- 2005 Stevo Julius (Ann Arbor, USA), B.N.C. Prichard (London, UK)
- 2006 Alberto Zanchetti (Milan, Italy)
- 2007 Per Lund-Johansen (Bergen, Norway), Jiří Widimský Sr. (Prague, Czech Republic)
- 2008 Liu Lisheng (Beijing, China)
- 2009 Peter van Zwieten (Amsterdam, The Netherlands), Jose L. Rodicio (Madrid, Spain)
- 2010 Detlev Ganten (Berlin, Germany)
- 2011 Denis L. Clement (Gent, Belgium)

Lennart Hansson Memorial Lecture

Established by the ESH in 2003, to be conferred upon a scientist who has obtained important results in the field of clinical hypertension and trials.

- 2003 Stevo Julius (Ann Arbor, MI, USA)
- 2005 Per Omvik (Bergen, Norway)
- 2006 Dick De Zeeuw (The Netherlands)
- 2007 Denis Clement (Gent, Belgium)
- 2008 Sverre E. Kjeldsen (Oslo, Norway)
- 2009 Bernard Waeber (Lausanne and Fribourg, Switzerland)
- 2010 Thomas Hedner (Goteborg, Sweden)
- 2011 Luis M. Ruilope (Madrid, Spain)

Paul Milliez Award

The venue of the ESH meeting offers a special opportunity to attribute an award to a French scientist acknowledged for his accomplishments in the field of hypertension.

- 2004 Michel Safar (Paris, France)
- 2005 Joel Ménard (Paris, France)
- 2006 Pierre Corvol (Paris, France)
- 2007 Albert Mimran (Montpellier, France)
- 2008 Bernard I. Levy (Paris, France)
- 2009 Jean-Michel Mallion (Grenoble, France)

- 2010 Gérard London (Fleury-Mérogis, France)
- 2011 Pierre François Plouin (Paris, France)

Jiří Widimský Sr. Award

Presented to three distinguished young European investigators (no older than 40 years) who have conducted promising research in the field of clinical or experimental hypertension and presented at the ESH meetings.

- 2002 Jana Loukotova (Prague, Czech Republic), Mikołaj Winnicki (Padova, Italy and Gdansk, Poland), Zoltan Lako-Futo (Budapest, Hungary)
- 2004 Dagmara Hering (Gdansk, Poland), Tatiana Kuznetsova (Leuven, Belgium), Maciej Tomaszewski (Glasgow, UK)
- 2005 Jitka Kucerova (Plzen, Czech Republic and Leuven, Belgium), Katarzyna Stolarz (Cracow, Poland), Branislav Strauch (Czech Republic)
- 2006 Otto Mayer Jr (Plzen, Czech Republic), Ludovit Paulis (Bratislava, Slovak Republic), Grzegorz Bilo (Cracow, Poland)
- 2007 Katarzyna Styczkiewicz (Milan, Italy and Cracow, Poland), Martin Mraz (Kosice, Slovakia), Zivka Dika (Zagreb, Croatia)
- 2008 Pantelis Sarafidis (Thessaloniki, Greece), Piotr Jankowski (Cracow, Poland), Katia Bürgi (Sao Paulo, Brazil), Maria Alejandra Lopez Verrilli (Buenos Aires, Argentina)
- 2009 Ivan Pecin (Zagreb, Croatia), Jacek Wolf (Gdansk, Poland), Ondrej Petrak (Prague, Czech Republic)
- 2010 Denisa Celovska (Bratislava, Slovak Republic), Jan Rosa (Prague, Czech Republic), Marcin Adamczak (Katowice, Poland)
- 2011 Zuzana Somloova (Prague, Czech Republic), Agnieszka Rojek (Gdansk, Poland), Peter Studinger (Budapest, Hungary)

Peter Sleight Award

Established in 2008 with a research grant made available by Boehringer Ingelheim. Conferred upon an investigator who has made an outstanding contribution to research, education, and leadership in the fields of hypertension and cardiovascular protection. One important award criterion is the number of citations received within the last 12 months.

- 2009 Renata Cífková (Prague, Czech Republic)
- 2010 Olle Melander (Lund, Sweden) and George Stergiou (Athens, Greece)
- 2011 Enrico Agabiti Rosei (Brescia, Italy)

Servier SNS Research Award of ESH (2003–2007)

Established in 2003 and consisting of a research grant made available by Servier. It has been given biannually by Servier to an investigator presenting a high quality a quality research project on the role of sympathetic nervous system in cardiovascular disease.

- 2003 Markus Schlaich (Erlangen, Germany)
- 2005 Krzysztof Narkiewicz (Gdansk, Poland)
- 2007 Gino Seravalle (Milan, Italy)

Servier Research Grant (2011–)

The newly-instituted Servier Research Grant in Hypertension is awarded every 2 years for a European research proposal in the field of hypertension and related diseases with a focus on end organ damage, surrogate markers, and biomarkers. The selection is made by a committee appointed by ESH.

2011 Kostantin E. Kotliar (Munich, Germany)

Talal Zein Award

The Talal Zein Foundation has established the *Talal Zein Award* to be presented annually to a distinguished scientist originating from a Mediterranean country, in recognition of outstanding work related to the basic science, epidemiology, pathophysiology or therapy of hypertension and other cardiovascular diseases.

2011 E. Lurbe (Spain)

Peter A. van Zwieten Award

Established in 2011. The award is conferred upon a scientist for his outstanding contribution to research on clinical pharmacology of drugs acting on RAAS (renin-angiotensin-aldosterone-system).

2011 Michel Azizi (Paris, France)

ESH/ESC guidelines for the management of arterial hypertension

Until 2003, ESH did not issue its own guidelines on hypertension, although it contributed significantly, with some of its members, to guidelines issued by the World Health Organization (WHO) and the International Society of Hypertension (ISH) between 1980 and 1999 [1]. After the 1999 WHO/ISH guidelines appeared, however, it was felt that there were reasons for issuing separate European guidelines on the diagnosis and treatment of hypertension. This was because the WHO/ISH guidelines had progressively evolved to meet the needs of a global audience consisting of countries that varied widely in both health care provisions and resources. On the other hand, Europe was a much more homogeneous community characterized by relatively well-developed health care systems which could utilize diagnostic and therapeutic approaches much more difficult for developing countries to implement.

2003 ESH/European Society of Cardiology (ESC) Hypertension Guidelines

The decision to write European guidelines was made in 2002 because from the 1999 WHO/ISH guidelines new information on patho-physiology, epidemiology, diagnosis and treatment of hypertension had been collected; another factor was the publication of several large-scale observational studies and morbidity/mortality trials. To meet this goal the ESH Scientific Council appointed a Guidelines Committee and invited ESC to join, based on the importance of the cardiological aspects of hypertension. The ESH/ESC guidelines were officially presented at the annual ESH meeting in Milan (2003) and published the same year in the *Journal of Hypertension* [2], *Blood Pressure*, and other scientific journals. The *Journal of Hypertension* also published a simplified guidelines version [3] and the ESH granted permission to translate either the more comprehensive or the simplified version into national languages to favour penetration of the guidelines into clinical practice. The reception from the scientific and medical communities was extremely favourable. In the following two years the ESH/ESC guidelines were the most widely-quoted biomedical article in scientific literature, and number five in general (Table 3).

Table 3. Top 10 papers published in 2003–2005 (as assessed in 2006)

	Authors	Title	Cited
1.	Spergel DN et al.	“First-year Wilkinson microwave anisotropy probe (WMAP) observations: Determination of cosmological parameters”, <i>Astrophys J Suppl Ser</i> 2003; 148: 175–194	1.510
2.	Bennet CL et al.	“First-year Wilkinson microwave anisotropy probe (WMAP) observations: Preliminary maps and basic results”, <i>Astrophys J Suppl Ser</i> 2003; 148: 1–27	778
3.	Eidelman S. et al.	“Review of particle physics”, <i>Phys Lett B</i> 2004; 592: 1–1109	579
4.	Xia YN et al.	“One-dimensional nanostructures: Synthesis, characterization, and applications”, <i>Advan Mater</i> 2003; 15: 353–389	456
5.	Mancia G et al.	“2003 European Society of Hypertension–European Society of Cardiology guidelines for the management of arterial hypertension”, <i>J Hypertension</i> 2003; 21: 1011–1053	455
6.	Zuker M.	“MFOLD Web server for nucleic acid folding and hybridization prediction”, <i>Nucleic Acids Res</i> 2003; 31: 3406–3415	396
7.	Lynch TJ et al.	“Activating mutations in the epidermal growth factor receptor underlying responsiveness of non-small-cell lung cancer to gefitinib”, <i>N Engl J Med</i> 2004; 350: 2129–2139	355
8.	Nakano T et al.	“Evidence for a narrow S- +1 baryon resonance in photoproduction from the neutron”, <i>Phys Rev Lett</i> 2002, 2003; 91: 01	332
9.	Ferrara N et al.	“The biology of VEGF and its receptors”, <i>Nat Med</i> 2003; 9: 669–676	329
10.	Moses JW et al.	“Sirolimus-eluting stents versus standard stents in patients with stenosis in a native coronary artery”, <i>N Engl J Med</i> 2003; 349: 1315–1323	326

2007 ESH/ESC Hypertension Guidelines

The publication of additional important studies made it necessary to produce an update of the 2003 guidelines only a few years later. ESH and ESC again agreed to cooperate and formed a guidelines Committee which worked from September 2006 to April 2007, on a comprehensive text that underwent an extensive review process by experts from European countries. The guidelines were presented at the annual 2007 ESH meeting in Milan, at the annual 2007 ESC meeting, and thereafter, at the most important scientific events worldwide. They were published in the *Journal of Hypertension* [4], the *European Heart Journal* [5], and *Blood Pressure* [6], and translated under the responsibility of national Hypertension and Cardiology Societies, into several national languages. As in 2003, simplified versions were published by ESH while ESC included them in its “Pocket Guidelines” series to be adopted by national cardiological societies. The 2007 guidelines were again widely quoted in the medical literature of subsequent years. They were also adopted integrally or in part outside Europe, often serving as a basis for the elaboration of extra-European guidelines.

2009 ESH Reappraisal of Hypertension Guidelines

By 2007 it became progressively clearer that on several important hypertension issues available evidence was by no means straightforward. This led to the ESH decision to publish a reappraisal of the 2007 ESH/ESC guidelines [7, 8] which focused on the evidential basis of a number of previous guidelines recommendations; among these were assessment of cardiovascular risk, identification of sub-clinical organ damage, blood pressure values at which to start treatment, and blood pressure targets for treatment. The aim was not only to facilitate future guidelines updates, but also to promote the planning of trials in areas in which data were absent or interpretation of previous trials was controversial. Although not being formally called new guidelines, the 2009 ESH document has and is enjoying a popularity comparable to that of the previous guidelines. The document has been translated into several European languages and quoted as extra-European guidelines.

2013 ESH/ESC Hypertension Guidelines

As far as the main Hypertension Guidelines are concerned, ESH and ESC have agreed to jointly work on an update of the 2007 Guidelines to be ready by 2013. The preliminary steps (formation of the Guidelines Committee, rules, time-table, etc.) are under way with the aim for the activity to start in the second half of 2011, and be completed in the first half of 2013, in order to make the guidelines available for official presentations at the annual ESH and ESC meetings, as well as for publication in the 2013 issues of the *Journal of Hypertension* and the *European Heart Journal*. Practice and pocket guidelines versions are also planned as well as translations into national languages, under the responsibility of national hypertension or cardiology societies.

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Other guidelines, position statements and the *ESH Manual of Hypertension*

In the last decade ESH has also issued guidelines on specific aspects of hypertension and related cardiovascular diseases on which recommendations based on a critical review of the evidence were lacking or incomplete. In this context the ESH Working Group on BP Monitoring has been very active over the years and has published a number of position papers, based on available evidence, on how to best measure blood pressure in different settings, i.e. in the office, at home, in ambulatory conditions over 24 hours or in low resource settings [1–5]. In particular, members of the ESH working group on BP monitoring were involved in a WHO commission specifically aimed at addressing the emerging problems of hypertension and cardiovascular risk control in low-resource settings. This led to the publication of recommendations for development of BP measuring devices to be used in developing countries, under the endorsement of the WHO [4]. It is encouraging to acknowledge that these recommendations were indeed followed by manufacturers, and that a few robust, accurate, ecological and cheap (solar batteries) BP measuring devices were produced according to these indications, one of them being implemented in daily practice and undergoing field testing in two African Countries under the direction of members of the ESH BP monitoring working group [6]. Specific guidelines have been issued also on evaluation and validation of blood pressure measuring devices [7, 8]. This has been followed by guidelines on home blood pressure, an approach of increasing use in the medical practice [9–11].

It has to be emphasized that discussion on this important issue has led to the publication of “practice” guidelines for the use of home blood pressure monitoring, prepared for the first time with the active contribution of two groups of general practitioners, one from Italy and another from Greece [11]. Finally, in 2009 new guidelines have been published on how to interpret blood pressure values as well as to diagnose and treat hypertension in children and adolescents [12] (Photo 49).

All these guidelines have become a reference publication in the respective areas and in several instances have been adopted by other scientific Societies in and outside Europe. Future guidelines or position papers are planned for topics on which knowledge is rapidly expanding such as diagnosis and treatment of atrial fibrillation in hypertension and the updated ESH guidelines on the use of ambulatory blood pressure monitoring, which are going to be discussed at the 2011 ESH meeting in Milan.



Photos 46–48. 2007 ESH Consensus Conference on Home BP Monitoring (Verbania, Lake Maggiore, Italy)

Management of high blood pressure in children and adolescents: recommendations of the European Society of Hypertension

Empar Lurbe^{a,b}, Renata Cifkova^c, J. Kennedy Cruickshank^d, Michael J. Dillon^e, Isabel Ferreira^f, Cecilia Invitti^g, Tatiana Kuznetsova^h, Stephane Laurentⁱ, Giuseppe Mancia^j, Francisco Morales-Olivas^k, Wolfgang Rascher^l, Josep Redon^{b,m}, Franz Schaeferⁿ, Tomas Seeman^o, George Stergiou^p, Elke Wühlⁿ and Alberto Zanchetti^q

Hypertension in children and adolescents has gained ground in cardiovascular medicine, thanks to the progress made in several areas of pathophysiological and clinical research. These guidelines represent a consensus among specialists involved in the detection and control of high blood pressure in children and adolescents. The guidelines synthesize a considerable amount of scientific data and clinical experience and represent best clinical wisdom upon which physicians, nurses and families should base their decisions. They call attention to the burden of hypertension in children and adolescents, and its contribution to the current epidemic of cardiovascular disease, these guidelines should encourage public policy makers, to develop a global effort to improve identification and treatment of high blood pressure among children and adolescents. *J Hypertens* 27:1719–1742 © 2009 Wolters Kluwer Health | Lippincott Williams & Wilkins.

Journal of Hypertension 2009; 27:1719–1742

ESH, The European Society of Hypertension; EU, European Union; FDA, Food and Drug Administration; GFR, glomerular filtration rate; HDL-C, high-density lipoprotein cholesterol; IGT, impaired glucose tolerance; IMT, intima-media thickening; LDL-C, low-density lipoprotein cholesterol; LVH, left ventricular hypertrophy; LVM, left ventricular mass; MRA, MR angiography; ONTARGET, Ongoing Telmisartan Alone and in Combination With Ramipril Global Endpoint Trial; OSA, obstructive sleep apnea; PRA, plasma renin activity; PUMA, Paediatric Use Marketing Authorization; q.d., once daily; SDB, sleep-disordered breathing; t.i.d., three times daily; TH18oxoF, 18-oxo-tetrahydrocortisol; THAD, tetrahydroaldosterone; THE, tetrahydrocortisone; THF, tetrahydrocortisol; UAE, Urinary albumin excretion

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Photo 49. Management of high blood pressure in children and adolescents: recommendations of the European Society of Hypertension

Contribution of ESH to other guidelines

In addition to contributing to the WHO/ISH guidelines issued before 2000, ESH members have officially contributed to other important international guidelines on hypertension or, more in general, cardiovascular prevention. To quote some examples, ESH members have officially represented the Society in the Writing Committee of the European Comprehensive guidelines on cardiovascular prevention in 1998, 2003 and 2007, adding its contribution to that of several other continental Societies [13–15]. It has also been officially represented in the Writing Committee of the Latin American Hypertension Guidelines [16] and of the recent guidelines on hypertension in the elderly issued by the American College of Cardiology [17]. It is part of the guidelines on diagnosis and treatment of hypertension associated with obstructive sleep apnoea, to be published also under the endorsement of the European Respiratory Society and of the European COST action B26 on obstructive sleep apnea [18, 19] (Photo 50). This cooperative work will continue in the future as part of the ESH mission to try to facilitate knowledge and implementation in scientific evidence at the clinical practice level.



Photo 50. Consensus document on the management of patients with obstructive sleep apnea and hypertension. Joint Recommendations by the European Cost Action B26, the European Society of Hypertension and the European Respiratory Society

ESH position statements

In addition to the various guidelines ESH, or some of its working groups, has also presented a number of position statements, most of them published in *Journal of Hypertension*. The first one in 2003 was on white-coat hypertension [20] and the second one in 2005 in two parts was on “Endothelial function and dysfunction. Association with cardiovascular risk factors and diseases” [21, 22]. Then came in 2006 a statement on “Identification and management of the hypertensive patient with elevated heart rate: statement of a European Society of Hypertension Consensus Meeting” [23] and another one “On detection and punishment of abstract fraud and poster plagiarism” [24]. In 2007 came a statement on the kidney and cardiovascular risk [25], and finally in 2008 a statement on the Metabolic syndrome in hypertension [26]. These statements have helped to express the view of the ESH Council or its working groups in different topics of general interest, not covered by other publications.

ESH Manual of Hypertension

The aim of this manual published in 2008 was not only to offer a full and detailed report on the several pathogenetic and pathophysiological data collected in recent years, but rather to focus on emerging new concepts that could affect the diagnostic and therapeutic approach of the disease.

In summary, a number of important publications from the ESH, including guidelines, position statements, and the manual have had a great influence on how hypertension has evolved as a clinical issue of great importance and how the

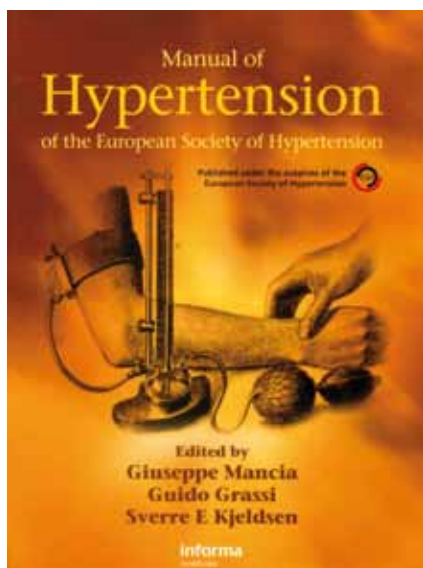


Photo 51. Manual of Hypertension of the European Society of Hypertension

prevention and treatment of this condition should be best carried out as part of a strategy aiming for cardiovascular protection.

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ESH Working Groups

According to what has been approved by the Scientific Council of the ESH, the Working Groups (WGs) have been created for the study of specific topics in the fields of experimental and clinical hypertension.

The functions of WGs are 1) to gather and exchange scientific information, 2) to promote and organise research in the subject, and 3) to establish appropriate recommendations for the ESH and other similar organizations.

So far 13 WGS of the ESH have been organised (Table 4). Five of them started their scientific activities on 2010. They are:

- WG on Hypertension and the Brain (chairman S. Laurent),
- WG on Hypertension, Thrombosis and Arrhythmias (initiated as chairman by A. Manolis, present chairman E. Agabiti Rosei),
- WG on Blood Pressure in Children (chaired by E. Lurbe),
- WG on Hypertension and Sexual dysfunction (chaired by M. Viigimaa),
- WG on Nursing and Patient Education (chairman R. Schmieder),

All of these WGs have organized Scientific Sessions at the ESH Meeting 2010 and will continue their activities at the 2011 ESH Meeting in Milan.

New working groups have been proposed (one of them is a WG on Hypertension and Cardiovascular Risk Assessment in Subjects Living in or Emigrating from Low Resource Settings, proposed by a group of scientists led by P.A.Modesti), which if approved by the ESH Council, will start their activity after the ESH 2011 meeting.

Table 4. ESH Working Groups and their current chairmen

WG on Blood Pressure and Heart Rate Variability (Prof. P. van de Borne)
WG on Blood Pressure Monitoring (Prof. R. Asmar)
WG on Endothelin and Endothelial Factors (Prof. G.P. Rossi)
WG on Hypertension and the Kidney (Prof. P. de Leeuw)
WG on Vascular Structure and Function (Prof. L.M. Van Bortel)
WG on Hypertension and the Heart (ESC) (Prof. A. Manolis)
WG on Endocrine Hypertension (Prof. F. Mantero)
WG on Obesity, Diabetes and the High Risk Patient (Prof. J. Jordan)
WG on Hypertension and the Brain (Prof. S. Laurent)
WG on Hypertension, Thrombosis and Arrhythmias (Prof. E. Agabiti Rosei)
WG on Blood Pressure in Children (Prof. E. Lurbe)
WG on Hypertension and Sexual Dysfunction (Prof. M. Viigimaa)
WG on Nursing and Patient Education (Prof. R. Schmieder)

WG on Blood Pressure Monitoring

An *ad hoc* group interested mainly in ambulatory blood pressure measurement came into being in 1990, when a need was perceived for a consensus in ambulatory blood pressure measurement.

The First International Consensus Meeting was held in Berlin in 1990 and was followed by meetings every two years in Dublin, New Orleans, Leuven, and Paris. The most remarkable feature of this group was that it had managed to bring interested scientists together every two years to debate developments in ambulatory blood pressure measurement without having a formal organisational structure. However, such were the advances in the development of blood pressure measurement in general that it was considered necessary to give some structural cohesion to the *ad hoc* arrangement.

Towards this end, meetings were held in Dublin and in Glasgow, during which it was recognised that there was a need for a formal structure which could take the initiative in organising meetings, whether alone, or as satellites for other meetings.

It was proposed, therefore, that a permanent group should be established, which would act as an official Working Group of the European Society of Hypertension. Eoin O'Brien was asked to draft a proposal for the composition and operation of such a Working Group. The Working Group met on June 15th, 1997, at the Eighth European Society Meeting of Hypertension in Milan, where the ESH approved the Group as an official Working Group.

At the business meeting of the Working Group held in Milan on June 17th, 2007, there was a consensus that the 1997 constitution needed to be updated, particularly to facilitate the inclusion into the group of young scientists with a record of research in blood pressure measurement.

The broad objectives of this Working Group are to advance knowledge relating to all aspects of blood pressure measurement with a view towards advancing the technology available for hypertension research and to improve the clinical management of hypertension. The Working Group will fulfil this objective in a number of ways, which will include:

- Production of guidelines for the clinical application of ambulatory and self-measurement of blood pressure;
- Establishment of internationally recognised technical and clinical validation protocols for blood pressure measuring devices;
- Organisation of meetings for communications and discussions, or lectures;
- Involvement of the manufacturing and engineering industries, the standards institutions, the nursing profession and other groups as may seem appropriate in future deliberations on the techniques of measurement;
- Actions aimed at influencing grant-awarding bodies and the pharmaceutical industry to incorporate ambulatory and/or self-measurement of blood pressure in outcome studies.

The current chairman of the WG is R. Asmar and the secretary is G. Parati.

WG on Blood Pressure and Heart Rate Variability

A number of investigators interested in the methodology of continuous blood pressure (BP) and heart rate (HR) monitoring, in the computer analysis of the recorded signals, in the pathophysiology of BP and HR variability, and in the clinical relevance of parameters quantifying cardiovascular variability had decided to create an *ad hoc* working group in 1987. This group included physiologists, clinicians, mathematicians, and bioengineers, all interested in approaching cardiovascular variability phenomena from different perspectives, including the development of mathematical models for proper signal processing and quantification of BP and HR variability phenomena. This group started organizing official yearly meetings, most of which took place in Italy and every other year in connection with the ESH Meeting.

The merit of this group was in its multidisciplinary nature. The meetings organised by these scientists were also focused on the physiology of cardiovascular homeostasis, and on the central and reflex neural mechanisms involved in the modulation of BP and HR variability phenomena. It is within the framework of this working group that new methods for the assessment of the sensitivity of spontaneous baroreflex modulation of heart rate were developed, either in the time or frequency domains. At the end of the eighties a fruitful cooperation was started with a group of French scientists, known as the BAVAR group (BAVAR comes from BARoreflexes and BP and HR VARIability), with the organization of joint meetings, consequently named “EUROBAVAR” meetings.

G. Parati, who initially proposed this activity, obtained the official affiliation of this working group with the ESH, and was elected as chairman of what then became a new WG officially acknowledged as the Working Group on BP and HR variability of the ESH. The WG nucleus, over the years, included F. Iellamo, M. Di Rienzo, B. Janssen, A. Pathak, P. Castiglioni, P. van de Borne, K. Narkiewicz, G. Bilo, C. Julien, C. Cerutti, J.L. Elghozi, D. Laude, C. Barrés, O. Fortrat, and G. Parati.

The activity of this WG has developed in tandem with an increasing interest in BP variability phenomena, as testified by the Pubmed publication track record on blood-pressure-variability (more than 11,000 from 2001 to 2009).

The broad objective of this ESH Working Group has remained to advance knowledge in relation to all aspects of blood pressure recordings and of analysis of BP and HR variability, with the aim of advancing an understanding in the physiology and pathophysiology of cardiovascular variability.

The activity of this working group has led to many important publications in this field, and to the creation of a specialized web site gathering a “Glossary” of terms and definitions of parameters related to blood pressure and heart rate variability analysis in both the time and frequency domains. Since the year 2008, the elected chairman has been Philippe van de Borne.

WG on Vascular Structure and Function

This WG was chaired in the past by M. Safar and H. Struijker Boudier, and until 2011, by L. von Bortel (vice-chairman R. Schmieder). The next WG chairman will be P. Chowienczyk.

This WG has organized Scientific Sessions each year at the ESH Meetings.

Moreover, this WG endorsed the ARTERY Society meeting each year since 2005, and the activities of the European Network for Non-invasive Investigation of Large Arteries (chairman S. Laurent).

In 2006 and in 2010, the WG has published jointly with the European Network and ARTERY Society an *Expert Consensus Document on Arterial Stiffness and the Reference Values for Aortic Pulse Wave Velocity respectively*.

WG on Endothelin and Endothelial Factors

This WG, chaired by G.P. Rossi during the past 8 years was able to publish Guidelines on the assessment and significance of endothelial function, in addition to organizing scientific sessions during the ESH Meetings.

WG on Hypertension and the Kidney

This WG was founded in 1998. The first chairman was J. Rodicio. Current chairman is P. de Leeuw.

This WG has organized several sessions during the past ESH Meetings on topics related to the kidney in hypertension and in pre-hypertension, mechanisms of renal damage, and renal haemodynamics.

WG on Endocrine Hypertension

This WG was founded in 2004, and the first chairman was J. Lenders. The present chairman is F. Mantero, the vice-chairman P.F. Plouin, and the secretary J. Widimský Jr.

This WG has organized several sessions at the ESH meetings. It maintains close contact with the European Network for the Study of Adrenal Tumours (ESF-ENS @ T), the European Section of the Aldosterone Council (ESAC), the International Aldosterone Conference (IAC), and the Pheochromocytoma/Paraganglioma Research Support Organisation (PRESSOR). The ESH has endorsed the Clinical Practice Guidelines for Primary Aldosteronism written by a Scientific Panel of the Endocrine Society in which the WG Chairman was one of the members.

This WG has also proposed a scientific project entitled LHASSA (Lateralized Hyperaldosteronism and Aldosterone Suppression with Saline).

WG on Obesity, Diabetes and the High Risk Patient

Since 2011, this WG has represented the merging of 3 WGs, on Obesity, on Diabetes, and on the High Risk Patient, founded in 2001–2002 and chaired, respectively, by J. Jordan, R. Cífková and P. Nilsson, and L. Ruilope.

These WGs worked on ESH Newsletters, statements and organized scientific sessions each year at the ESH Meetings.

WG on Blood Pressure in Children

This WG was founded in 2009, and the first chairperson was Empar Lurbe, the vice-chair Serap Erdine, and the secretary Dennis Pall. This WG has organized specific sessions at the ESH annual meetings devoted to cover the most important is-

sues in this field. The scientific projects have, and will cover the areas that were highlighted in the ESH Guidelines on children and adolescents. These are:

- a) To develop accurate non-mercury sphygmomanometer for auscultatory BP measurement and accurate devices for oscillometric BP measurement, and carefully compare values obtained with the two methods in infants, children and adolescents.
- b) To obtain robust reference values for office, home and ambulatory BP based on a European pediatric population.
- c) To increase knowledge in the use of out-of-office BP measurements.
- d) To collect information about early organ damage so as to refine risk stratification and use the information to set intermediate objectives during treatment.
- e) To conduct large, long-term randomized therapeutic trials using onset of organ damage (such as onset of microalbuminuria and/or left ventricular hypertrophy) to obtain information about when to initiate antihypertensive drug treatment and to decide which BP goals to achieve.
- f) To conduct controlled studies with antihypertensive drugs in order to improve knowledge about specific benefits and disadvantages of BP-lowering agents and establish adequate doses.

The Working Group was the core of the team which developed the guidelines entitled “Management of High Blood Pressure in Children and Adolescents: Recommendation of the ESH.” The Guidelines have been translated and published in different languages and countries in Europe and South America. They have been published in the most important journals in the field of pediatrics and primary care. Additionally, they have been uploaded onto the International Pediatric Hypertension Association (IPHA) website as requested by Julie Ingelfinger, the president of the association. The guidelines were presented at the Assembly of the IPHA in New York in August 2010.

WG on Hypertension and the Heart

In fact, this is a WG of the European Society of Cardiology (ESC) and it was decided that the chairman of this WG would be a member of the ESH Council. This WG was chaired by several members of the ESH, including J.I.S. Robertson, P. Sleight, G. Mancia, P. Lund-Johansen, E. Agabiti Rosei, P. van Zwieten, D. Clement, G. Grassi, R. Fagard and S. Erdine. A. Manolis is the chairman of this WG for the period 2011–2012.

This WG has organized scientific Symposia at Meetings of both the ESH and ESC and has published a few ESH newsletters on several topics related to cardiovascular complications of hypertension. Several documents and reviews on hypertensive heart diseases are also in preparation.

The recent ESH-ESC Guidelines on the management of hypertension have been written with the active participation of the members of this WG.

ESH Working Groups: activity and rules

WGs of the ESH are organized according to simple rules published in 2004. New WGs are proposed to the ESH Council by recognized experts on the basis of a clear scientific background. They are not permanent and may be either terminated or merged with other WGs, if appropriate. It has been stated that each WG should have a chairman (in charge for 2 years, with the possibility of being re-elected once), a secretary and members with recognized competence in the fields of interest of the WG. New WGs should have at least 10 founding members, from different countries.

Until 2011, the WGs Coordinator, who represented the WGs in the ESH Council, has been E. Agabiti Rosei. The present WGs coordinator is G. Parati.

Perspectives for ESH Working Groups

The role of ESH Working Groups is currently being reconsidered and their importance further emphasized by ESH Council.

There is general agreement that working groups should represent the backbone of a scientific society, including young investigators together with experienced scientists, all interacting and cooperating with the common goal of advancing scientific knowledge in specific fields and to be whenever possible, of translating it into clinical implications.

Against such a background, working groups should remain active and should guarantee quantifiable outputs of their activities. These include generation of databases and/or registries, development and implementation of collaborative research projects, publication of joint scientific papers in peer review journals, preparation and publication of position papers, and proposing recommendations and guidelines in the specific topics where they are active.

Whenever this does not occur, an inactive working group can be terminated by the ESH Council.

In the future development of ESH WG activities, it is also advisable that those working groups, which include a limited number of scientists and focus on similar topics, consider the possibility of merging, with the possible benefit of a fruitful synergy in their efforts leading to better outcomes.

ESH Summer Schools

The first ESH Summer School was organized by Luis Ruilope in El Escorial, Spain in 1995. However, its history goes back to 1991 when the German Hypertension League decided to organize a summer school for young fellows interested in hypertension. Hypertension societies in Europe were approached to submit their candidates. It was the initiative of Detlev Ganten, Heidelberg, and Joel Menard, Paris. As Detlev Ganten, who had offered to organize the first Summer School in Heidelberg, took up a new position at the Max Delbrück Center in Berlin, his younger associate Thomas Unger stepped in and undertook the organization. As they were both working with the University of Heidelberg at that time, they decided on a nearby location in the Neckar Valley. The participants came from both basic research and clinical practice. A specific feature of the Summer Schools from their very beginning, besides the scientific parts, was an effort to foster social life and communication among the participants, including music to be played by the fellows, and many other social activities and events. A boat trip on the romantic Neckar River and a merry farewell party belong to the events still cherished by faculty and fellows of this first Summer School.

Summer Schools near Paris (1992) and Glasgow (1993) followed in subsequent years, organized by Joel Menard and John Reid, respectively. In 1994, Thomas Unger was again in charge of the Summer School held at Lago di Garda.

In 1995, when Thomas Unger was a member of the Scientific Council of the ESH and Alberto Zanchetti was ESH President, it was agreed that ESH was to take responsibility for the Summer School, which thus became an official activity of ESH. Consequently, ESH Summer Schools were held at El Escorial (Spain) in 1995 (organized by Luis Ruilope), at Les Diablerets (Switzerland) in September 1996 (organized by Bernard Waeber), in Paris (France) in September 1997 (organized by Joel Ménard), and in Schloss Saltzau near Kiel (Germany) in October 1998 (organized again by Thomas Unger).

In 1998, Renata Cífková, then a new and young member of the ESH Scientific Council, was appointed to be responsible for the ESH Summer Schools. Since 1999, she has been also involved as a faculty member.

In 1999, the Summer School was organized by Hermann Haller at the newly-reconstructed university campus in Berlin-Buch. The fellows stayed within the campus and had the opportunity to visit the research laboratories several times during the course. An unforgettable event was the cycling tour organized by Fred

Luft, a former professional cyclist, losing half of the participants on their way through forests surrounding Berlin and its lakes.

In 2000, Renata Cífková organized the Summer School in Senohraby, a recreational area near Prague. The participants and the faculty stayed in a comfortable yet isolated hotel difficult to escape from. Nevertheless, a guided tour to Prague was arranged during the course.

In the year 2001, just five days before the event, the world was shocked by the terrorist attacks on September 11. In that particular year, the school was scheduled to be held in Gdansk, Poland, and organized by Krzysztof Narkiewicz. Despite some initial uncertainty whether to go ahead with the course, Renata Cífková decided to run the course and it later turned out that only a participant from Israel had cancelled his trip. A specific feature of this Summer School was that the participants had to take a boat to attend the lectures held in a museum across a canal.

The 2002 ESH Summer School was hosted by Anna Dominiczak in Glasgow. The fellows and faculty stayed in a dormitory located off the university campus. During the course, a visit to the university research laboratories and the Glasgow Infirmary Stroke Unit was arranged. While the Loch Ness Monster failed to emerge, the participants were able to enjoy the beauty of Scotland's landscape flavored by Scotch whiskey.



Photo 52. Participants of the 2001 ESH Summer School, Gdansk, Poland, in front of the Maritime Museum (with Krzysztof Narkiewicz, the local organizer, first on the right)

In 2003, Peter Nilsson was in charge of the ESH Summer School held in Ystad, Sweden, in a hotel (formerly a salt bath) on the shores of the cold Baltic Sea. Several sightseeing tours took the participants to various places in southern Sweden including the summer house of former UN Secretary General Dag Hammarskjöld and an apple farm serving meals and drinks made exclusively from their own apples.

In 2004, Enrico Agabiti-Rosei selected an absolutely unique place for the ESH Summer School: a pastoral center within a monastery in Brescia, Italy, located directly in the city center.

In the year 2005, the ESH Summer School moved for the third time to Central Europe. Csaba Farsang organized the course in Visegrad, Hungary, in a hotel on a hill overlooking the Danube River.

In 2006, the venue of the course was a hotel situated in the center of Valencia, Spain. This was a unique opportunity for the fellows to admire both the old and modern architecture of Valencia including the farewell dinner at the Aquarium.

In 2007, the ESH Summer School was organized by Athanasios Manolis in a resort in Olympic Riviera of Greece. A tour to ancient Olympia was offered during the course.

Jean-Michel Mallion was appointed to organize the course in 2008. He selected, for the venue, an elegant old hotel belonging previously to the Russian Tsars family in Annecy, France.

In 2009, the ESH Summer School was held in Smolenice Castle, Slovakia, at the foothills of the Little Carpathian near Bratislava, with Slavomira Filipova as the course director. The castle currently serves as an educational center of the



Photo 53. 2006 ESH Summer School, Valencia (Spain), with the 3 Spanish faculty members in the center of the photo (from left to right: Jose Rodicio, Josep Redon, and Antonio Coca), and Stephane Laurent (the second standing person from the left)

Slovak Academy of Sciences. The fellows were taken to see not only the capital of Slovakia but, also, some castles and manors in the countryside, and enjoyed a lot of tasty local food and wine.

So far the most difficult place to reach but an absolutely gorgeous one was Rovinj, Croatia. The 2010 Summer School was held in a convenient hotel on a small island accessible only by boat. Bojan Jelakovic, the course director, arranged a number of trips to various places including the Island of Brioni, a former summer residence of Josip-Broz Tito.



Photo 54. 2009 ESH Summer School, Smolenice Castle, Slovakia



Photo 55. Alberto Zanchetti, the founding father of the ESH Summer School, welcoming the participants of the 2009 ESH Summer School at Smolenice Castle, Slovakia



Photo 56. Thomas Unger lecturing in Smolenice Castle in 2009; he was the person in charge of the first Hypertension Summer School organized in Germany in 1991, in Italy in 1994, and in Germany again in 1998

There is a growing interest in attending the ESH Summer School, with the number of participants being greater than 60 in recent years, and with approximately equal representation of Eastern and Western Europe.

There is also a growing interest in hosting the event, with locations and persons in charge already approved by the ESH Scientific Council through 2015.



Photo 57. 2010 ESH Summer School in Rovinj, Croatia



Photo 58. One of the highlights of the 2010 ESH Summer School, a trip to the Island of Brioni, a residence of former President Josip-Broz Tito. Peter Sleight in the first row of the car, and Bojan Jelakovic, the local organizer of the event, in the third row

General information about the ESH Summer School

Who should attend?

Younger candidates strongly **devoted to hypertension**, coming from both basic research and clinical practice. Although there is no specific age limit, candidates below the age of 40 should be preferred.

The ESH Summer School is only a **once-in-a-lifetime event**, which means each participant can attend the course only once in his/her life.

Topics to be covered

Basic research

Clinical areas

Faculty

Truly international, using the unique opportunity to expose the fellows to a number of excellent local speakers.

Table 5. History and future of ESH Summer Schools

Year	Country	City	Person in Charge
1995	Spain	El Escorial	Luis Ruilope
1996	Switzerland	Les Diablerets	Bernard Waeber
1997	France	Paris	Joel Menard
1998	Germany	Schloss Salzau near Kiel	Thomas Unger
1999	Germany	Berlin	Hermann Haller
2000	Czech Republic	Senohraby (off Prague)	Renata Cífková
2001	Poland	Gdansk	Krzysztof Narkiewicz
2002	United Kingdom	Glasgow	Anna Dominiczak
2003	Sweden	Ystad	Peter Nilsson
2004	Italy	Brescia	Enrico Agabiti Rosei
2005	Hungary	Visegrad	Csaba Farsang
2006	Spain	Valencia	Josep Redon
2007	Greece	Olympia	Athanasios Manolis
2008	France	Annecy	Jean-Michel Mallion
2009	Slovakia	Smolenice	Slavomira Filipova
2010	Croatia	Rovinj	Bojan Jelakovic
2011	Spain	Barcelona	Antonio Coca
2012	Ireland	Dublin	Alice Stanton
2013	Portugal	Porto	Fernando Pinto
2014	Bulgaria	Varna	Yoto Yotov
2015	Austria	Schloss Hernstein (near Vienna)	Bruno Watschinger

Expenses

Covered by the ESH: accommodation and travel costs of the faculty and the attendees' accommodation and meals.

Covered by national societies of hypertension: attendees' travel costs.

There will still be some travel grants provided by the ESH for countries facing economic hardship.

How to apply

At least two candidates from each country (bigger countries may send more than two applications) should be nominated by national societies of hypertension in Europe, with applications submitted by March 31.

Each national society of hypertension will be informed about the selection of candidates in early June.

Contacts to future local organizers

2011

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2012

Dr. Alice Stanton

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2013

Dr. Fernando Pinto

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2014

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2015

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How to apply for hosting a Summer School?

A person wishing to organize a summer school should send an official application to the current President of the ESH and a copy to the Secretary of the ESH Educational Activities Committee.

The application should contain a brief description of the venue, its accessibility (nearest international airport), preliminary budget for 50 fellows (accommodation and meals), and a list of potential local speakers with topics they may cover.

The application is to be submitted by January 31 each year for the ESH Summer School to be held 4 years later. The decision will be made by the ESH Scientific Council during its spring meeting. The applicants will receive written information thereafter.

What is a suitable venue for a Summer School?

Any place capable of accommodating about 50 fellows and providing meals, and having a lecture hall. Ideally, such a venue has a slightly isolated location.

Obligations of the local organizer

To submit:

- A budget to be approved by the ESH Scientific Council (by February 14 of the year of the event);
- A scientific program to be approved by the ESH Scientific Council (by May 31 of the year of the event).

To organize:

- Transfers of fellows and faculty members from/to the nearest international airport to the venue;
- A social program (sightseeing, etc.).

To raise some funding as a contribution to the social program.

Contact to the Secretary of the ESH Educational Activities Committee

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Center for Cardiovascular Prevention

Thomayer University Hospital

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ESH Advanced Courses on Hypertension

Giuseppe Mancia proposed the organization of ESH Advanced Courses on Hypertension in 2003. This activity was approved by the ESH Scientific Council and Renata Cífková was appointed to serve as a course co-director together with Giuseppe Mancia.

The aim was to provide a teaching course for certified European Hypertension Specialists or those who wish to improve their knowledge in clinical hypertension and become European Hypertension Specialists in the near future.

In 2005, the ESH Scientific Council agreed to invite several presidents/representatives of national societies of hypertension in Europe to develop closer relations. All expenses for invited participants would be covered by the ESH. It was also decided to provide up to 3 grants to participants from countries facing economic hardship.

Besides regular lectures, there are also “How to” sessions, such as on assessment of arterial stiffness, sympathetic nervous activity, echo and carotid ultrasound, and endothelial function. This course should provide interaction between the faculty and fellows. In order to stimulate this interaction, case presentations by the fellows, and commented upon by the faculty, have now become part of the scientific program.

There is no registration fee for this course. All the expenses for the faculty, and for technical and organizational support for the course are covered by the ESH. The participants have to pay only for their accommodations and travel expenses.

Table 6. History of ESH Advanced Courses on Hypertension

Year	Country	Place	Course co-directors
2004	Italy	Courmayeur	G. Mancia/R. Cífková
2005	Italy	Courmayeur	G. Mancia/R. Cífková
2006	Italy	Madonna di Campiglio	G. Mancia/R. Cífková
2007	Italy	Sestriere	G. Mancia/R. Cífková
2008	Italy	Courmayeur	G. Mancia/R. Cífková
2009	Italy	Courmayeur	G. Mancia/R. Cífková
2010	Switzerland	St. Moritz	G. Mancia/R. Cífková
2011	Switzerland	St. Moritz	G. Mancia/R. Cífková

The first course was organized in 2004 in Courmayeur, a fashionable winter resort on the Italian side of Mt. Blanc. So far, all the courses have been held in the mountains, mostly in Italian ski centers such as Madonna di Campiglio and Sestriere. For the last 2 years, the participants and the faculty have been very happy with St. Moritz.

The following daily schedule leaves a lot of opportunities for outdoor activities.

08:00 – 10:00 Lectures

15:30 – 16:00 Coffee break, light refreshment

16:00 – 18:00 Lectures (“How to” sessions)

18:00 – 18:15 Coffee break

18:15 – 19:00 Case presentation

19:00 – 20:00 Lecture

The number of participants is growing. In 2004, we started with a small group of 20 people, and the last course (2011) was attended by 45 participants from 25 countries including six presidents/representatives of national societies of hypertension in Europe. They all recommend that the ESH continues with this activity.



Photo 59. Participants of the 2005 ESH Advanced Course on Hypertension, Courmayeur, Italy



Photo 60. Cover pages of the course programs of the 2006, 2009 and 2010 ESH Advanced Courses on Hypertension

ESH Teaching Faculty and ESH Master Courses

The first tour of the ESH Teaching Faculty was organized by Csaba Farsang in Hungary in September 2001. The ESH was represented by its then current President Jose Rodicio, Vice President Jean-Michel Mallion, and Secretary Renata Cífková. The faculty met in Budapest and was taken by car to Pecs, Szeged, Debrecen, Eger, with the last stop in Budapest. There were seminars organized in each of the towns, with Csaba Farsang and at least one local speaker joining the faculty.

Educational Master Courses of the European Society of Hypertension

In 2006, the ESH initiated Educational Master Courses of the European Society of Hypertension which were held in several European countries (mainly in Central and Eastern Europe), Morocco, Syria and Algeria, with the aim to present and discuss the most recent progress on diagnosis and treatment of hypertension as well as on prevention of cardiovascular risk. The basis for the presentations and discussions are the guidelines on the treatment of hypertension prepared by the ESH and the European Society of Cardiology (ESC). In each meeting ESH opinion leaders review trials and mechanistic data that have formed the basis for the Guidelines recommendations, whereas national leaders provide their feed-back and discuss how these recommendations can fit local clinical practice, thus helping in their implementation. National leaders also present and discuss the current situation of their country as far cardiovascular research and prevention strategies are concerned. All faculty members finally discuss a number of clinical cases to exemplify theoretical concepts presented at the meeting.

So far, 31 Master Courses were organized with almost 6,000 participants. Two more educational courses are planned in Vilnius (Lithuania) and Sopot (Poland) in fall 2011.

Table 7. Educational Master Courses of the European Society of Hypertension

Date	City	Country
May 12–13, 2006	Sofia	Bulgaria
June 2003, 2006	Poiana Brasov	Romania
September 22–23, 2006	Budapest	Hungary
October 6–7, 2006	Tallinn	Estonia
October 20–21, 2006	Vilnius	Lithuania
November 24–25, 2006	Prague	Czech Republic
May 9–10, 2007	Balatonfured	Hungary
May 11–12, 2007	Sofia	Bulgaria
September 12–13, 2007	Moscow	Russia
September 21–22, 2007	Moravske Toplice	Slovenia
October 5–6, 2007	Helsinki	Finland
October 12–13, 2007	Sinaia	Romania
October 19–20, 2007	Riga	Latvia
October 26–27, 2007	Prague	Czech Republic
November 9–10, 2007	Plovdiv	Bulgaria
November 23–24, 2007	Tirana	Albania
November 7–8, 2008	Bucharest	Romania
November 19–20, 2008	Plovdiv	Bulgaria
November 21–22, 2008	Prague	Czech Republic
November 21–22, 2008	Copenhagen	Denmark
November 25, 2008	Tirana	Albania
November 28–29, 2008	Minsk	Belarus
December 2–3, 2008	Budapest	Hungary
February 28–March 1, 2009	Fès	Morocco
November 20–21, 2009	Prague	Czech Republic
November 20–21, 2009	Minsk	Belarus
April 21–22, 2010	Žilina	Slovakia
October 15–16, 2010	Damascus	Syria
November 19–20, 2010	Algiers	Algeria
May 13–14, 2011	Bucharest	Romania
May 20–21, 2011	Prague	Czech Republic

ESH Intensive Master Courses on Hypertension

The ESH started the tradition of multi-national Intensive Master Courses on Hypertension in Paris in 2008 with the intention to implement the 2007 ESH-ESC Guidelines for the management of arterial hypertension. Another specific goal of the event was to actively involve presidents of National Societies of hypertension in Europe. The courses not only focus on presentation of up-to-date guidelines, but also

on the obstacles to their implementation. The program consists of plenary sessions and parallel workshops with the intention to establish true interaction between the participants and the faculty. The workshops are based on case presentations.

The Paris meeting was followed by other successful Master Courses organized in Prague (April 2009), Kraków (October 2009) and Valencia (October 2010).



Photo 61. ESH Master Course in Bucharest, May 13th–14th, 2011



Photo 62. Cover pages of the Intensive Master Courses organized in Paris, Prague, Kraków and Valencia

ESH Hypertension Specialist Programme

The Hypertension Specialist Programme was organized by the ESH in 2000 to identify hypertension specialists in European countries, to contribute to the training of these specialists through teaching courses on hypertension, and to improve the treatment of hypertension in Europe (currently effective in a low number of patients) and thus obtain better prevention of cardiovascular disease.

Physicians intending to be a hypertension specialist should obtain a written endorsement from his/her National Hypertension Society, or in special circumstances, directly from the ESH. The online application form is sent to the Steering Committee for European Hypertension Specialist of the ESH. This committee makes the final decision about the nomination. A recent policy update now requires that all Hypertension Specialists should be members of the European Society of Hypertension.

An applicant must meet the following criteria:

- clinical experience in hypertension with particular reference to referral of patients with difficult hypertension;
- training in a medical specialty germane to hypertension (internal medicine, nephrology, cardiology, endocrinology, primary care, etc.);
- a certain degree of scientific activity (e.g. publications on clinical hypertension, participation in clinical trials, etc.);
- continuing interest and updating in hypertension as shown by participation in scientific meetings and membership in hypertension-related scientific societies;
- recognition by their peers at national levels.

In re-accreditation for Hypertension Specialists, at least 3 of the following 4 criteria must be fulfilled in a 3-year period:

- participation in the ESH Annual Meetings;
- participation in annual meetings organised by national societies or meetings endorsed by the ESH;
- participation in ESH e-Learning Activities, and,
- publication in cardiovascular journals.

So far, the Accreditation Committee, with Prof. Giuseppe Mancia as the coordinator and Prof. Serap Erdine as the secretary, has approved over 900 ESH Hypertension Specialists (see the Table 8).

Table 8. ESH Hypertension specialists**Australia: 1**

Schlaich M.P.

Austria: 5Eber B.C.
Grüner P.F.
Mayer G.J.
Slany J.
Wenzel R.R.**Belgium: 11**Clement D.
Daelemans R.
Fagard R.
Kzesinski J.-M.
Leeman M.
Lins R.
Persu A.
Petrov V.
Van Bortel L.
Van de Borne P.
Van der Niepen P.**Bulgaria: 8**Angelov A.
Nikolov F.
Ramshev K.
Sirakova V.N.
Tisheva A.
Torbova S.
Tsanova V.M.
Yotov Y.T.**Croatia: 6**Bagatin J.
Kuzmanic D.
Kocijancic M.
Ljusic D.
Rumboldt Z.
Stosic C.**Czech Republic: 37**Adámková V.
Bartunek L.
Bruthans J.
Ceral J.
Cífková R.
Dusek J.
Fejfusa M.
Filipová A.
Filipovsky J.
Grundmann M.
Hamplová V.
Komers R.
Leso J.
Matyášek I.
Mayer O.
Málková J.
Monhart V.
Musilová V.
Nemcová H.
Novozámská E.Oral I.
Peleska J.
Pintérová E.
Riháček I.
Rosolová G.
Siegolová J.
Sipula J.
Somol A.
Soucek M.
Spinar J.
Tesar V.
Tomecková M.
Umnerová V.
Vítovec J.
Widimský J.
Zelinka T.
Zeman K.**Denmark: 5**Hansen T.W.
Jensen H.A.
Olsen M.H.
Poulsen K.
Skov K.**Estonia: 10**Goldsteine G.
Hedman A.
Luman M.
Maeots E.
Nazarenko S.
Pshenichnikov I.
Ristimae T.
Shipilova T.
Sungalovskaja M.
Viigimaa M.**Finland: 24**Antikainen R.
Fyhrquist F.
Grönfors R.
Hakamäki T.
Helin K.
Ikäheimo R.
Jääskivi M.
Jula A.
Kaaja R.
Kantola I.
Keinänen-Kiukaanniemi S.
Kontula K.
Kumpusalo E.
Lahtela J.
Lehto S.
Lehtonen A.
Lilja M.
Majahalme S.
Metsarinne K.
Nieminen M.
Niskanen L.
Saha H.
Tikkanen I.
Tikkanen T.**France: 45**Asmar R.
Azizi M.
Beaufils M.
Bénéto A.
Bentounés A. (Auxerre)
Bobrie G.
Cailar G.
Carre A.
Chamontin B.
Chanudet X.
Corvol P.
de Gaudemaris R.
Denolle T.
Du Cailar G.
Elghozi J.
Escande M.
Forette F.
Fournier A.
Girerd X.
Godin M.
Gosse P.
Grünfeld J.
Grünfeld J.P.
Hannedouche T.
Herpin D.
Imbs J.
Jeunemaitre X.
Lantelme P.
Laurent S.
Laville M.
London G.
Mallion J.
Marre M.
Milon H.
Mimran A.
Mounier-Vehier C.
Mourad J.J.
Plouin P.
Ribstein J.
Rossignol P.
Safar M.
Salvador M.
Siche J.
Vaisse B.
Zannad F.**Georgia: 5**Abesadze T.
Agladze V.
Kachakhidze T.
Trapaidze D.
Tsinamndzgvishvili B.**Germany: 102**Anders H.-J.
Banas B.
Baumgart P.
Birck R.
Bokemeyer D.
Bönnner G.
Brand E.

Brass H.
Braun C.
Breuer H.W.M.
Dechend R.
Derad I.
Düsing R.
Eckert S.
Finke H.-R.
Franz I.W.
Fritz A.
Geiger H.
Glatki G.P.
Gollash M.
Grieshaber M.
Grotz
Grupp C.
Hahn K.
Haller H.
Hausberg M.
Heering P.J.
Heintz N.P.
Herrmann J.M.
Hohage H.
Hollenbeck M.
Holzgreve H.
Homuth V.
Hoyer J.
Jacob S.
Jacobi J.
John S.
Jungmann E.
Jüstel K.
Keim H.J.
Ketelhut R.G.
Kisters K.
Koenig W.
Kreutz R.
Lenz T.
Liebau G.
Lüders S.
Mann J.
Marsen T.A.
Mengden T.
Middeke R.F.M.
Morell R.
Müller M.
Offers E.
Olbricht C.J.
Orth S.
Piper H.C.
Radermacher J.
Rahn K.H.
Reichert H.
Risler T.
Ritz E.
Roth R.K.
Rump L.
Sanner B.
Saupe J.
Schäfers R.F.
Schmidt R.R.
Schmieder R.E.
Schobel H.P.
Schön N.

Schölze J.
Schöneberger A.A.
Schrader J.R.
Schultz E.G.
Schwietzer G.
Seyerlein D.P.
Sharma A.M.
Sorge Hädicke B.
Stadler H.W.
Stark M.
Steffen H.-M.
Stimpel M.
Strutz F.
Suwelack B.M.
Tholl U.
Trenkwalder P.
Uppenkamp M.
Van der Giet M.
Veelken R.A.
Vogt D.-K.
Wagner J.
Wambach G.K.
Wenzel U.
Werning F.
Winterberg B.
Witta J.K.E.
Witte H.
Woywodt A.
Zehner J.A.
Zidek W.

Greece: 84

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Adamopoulou E.
Agathangelou N.-M. (Cyprus)
Andreadis E.A.
Antonakoudis H.G.
Antonopoulos S.N.
Arodites K.P.
Belegirinos D.
Bonoris P.
Boudonas G.E.
Charalampos G.
Delivoria C.
Diamantopoulos E.J.
Dimitrellos V.P.
Doumas M.
Drosos T.
Efstratopoulos A.D.
Efthimiadis A.N.
Elisaf M.
Gavra M.G.
Georgakopoulos K.
Giannakopoulou A.
Goussopoulos S.
Grassos C.
Hatsistavri L.S.
Hatzitolios A.I.
Kallistratos M.
Kanonidis I.
Karagiannis A.J.
Karakoussis C.S.
Karmaniolas K.D.
Karpanou E.A.

Kopras A.P.
Kotrides P.S.
Koyrtis T.
Kounanis A.D.
Lasaridis A.N.
Lefkos N.P.
Lisitsas N.
Lydakos C.S.
Magoula-Papadopoulou I.
Makris T.
Markoglou N.H.
Manolis A.
Marcou I.A.
Meikopoulos M.
Mentzikof D.G.
Milidis T.
Paletas K.
Panagoulis C.N.
Papadakis I.A.
Papadopoulos C.L.
Papadopoulos D.P.
Papanikitas N.F.
Papargyriou J.
Papavasiliou M.
Papoulidou F.K.
Paraskevopoulou E.C.
Pittaras A.
Psirropoulos D.Z.
Sarafidis P.A.
Savopoulos C.G.
Siamopoulos K.C.
Skargani-Koraka M.
Stabouli S.
Stafylas P.
Stergiou G.S.
Tourkantonis A.A.
Triantafyllou A.
Triantafyllidi H.
Tsagadopoulos D.G.
Tsakiris A.K.
Tsioufis K.
Tziolas J.M.
Vagropoulos I.
Varsamis E.
Vlahakos D.V.
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Voyaki S.M.
Vyssoulis G.P.
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Farsang C.
Finta E.
Hetey M.
Janosi A.
Jarai Z.
Jermendy G.
Kali A.
Kapocsi J.
Kempner P.
Kiss I.
Kolossváry E.
Kulcsar I.
Kurta G.
Matos L.
Nagy J.
Nemes J.
Pados G.
Pall D.
Paulin F.
Polak G.
Polyak J.
Poor F.
Préda I.
Rapi J.
Reusz G.
Rigó J.
Rostas L.
Sonkodi S.
Sulyok E.
Szauder I.
Szegedi J.
Szekacz B.
Szontagh C.
Timar S.
Tislér A.
Tulassay T.
Túri S.
Valyi K.
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Iceland: 1
Gudbrandsson T.

Ireland: 2
Feely J.
O'Brien E.

Israel: 23
Ben-Ari J.
Bernheim J.L.
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Gafter U.
Grossman E.
Holtzman E.J.
Kisch E.S.
Kristal B.
Leshem Y.
Paran E.
Podjarny N.
Rosenfeld J.B.
Rosenthal T.
Sharabi Y.
Stern N.

Tabenkin H.
Viskoper J.R.
Yagil Y.
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Yosefy C.
Zabludodowski J.
Zimlichman R.

Italy: 117

Agabiti Rosei E.
Ambrosio G.B.
Ambrosioni E.
Armanini D.
Barbagallo M.
Bellini G.
Beschi M.
Bianchi G.
Bonfanti F.
Borghi C.
Boscaro M.
Calò L.
Campanacci L.
Cardellino G.
Carretta R.
Carugo S.
Casiglia E.
Castellano M.
Cavaliere G.
Chiarappa R.
Cicconetti P.
Cerasola G.
Cosenzi A.
Costa F.V.
Cottone S.
Cusi D.
Cuspidi C.
Dal Palu C.
Decesaris R.
de Divitiis O.
de Luca N.
de Simone G.
Del Giudice A.
Dessi' Fulgheri P.
Fabris B.
Fallo F.
Ferrara A.
Ferrari A.U.
Ferri C.
Filigheddu F.
Fogari R.
Galletti F.
Garavelli G.
Gasbarrone L.
Gaudio G.V.
Germanò G.I.W.
Giannattasio C.
Glorioso N.
Grassi G.
Guasti L.
Guidi E.
Lechi A.
Lembo G.
Leonetti G.
Limone P.P.

Madeddu P.
Magnani B.
Magrini F.
Malatino L.
Malini P.
Mallamaci F.
Mancia G.
Manfellotto D.
Mantero F.
Manunta P.
Marotta T.
Mazza A.
Mezzetti A.
Morganti A.
Muiesan M.L.
Mulatero P.
Mulè G.
Nami R.
Nazzaro P.
Palumbo G.
Parati G.
Pauletto P.
Pessina A.C.
Pirrelli A.
Pontremoli R.
Porcellati-Pazzaglia C.
Portaluppi F.
Rabbia F.
Rappelli A.
Rizzoni D.
Rosiello G.
Rossi E.
Rossi G.P.
Rossi A.
Rossi F.
Salveti A.
Santucci A.
Scanferla F.
Schillaci G.
Scuteri A.
Sechi L.
Semplicini A.
Seravalle G.
Sonino N.
Stagni B.
Stornello M.
Strazzullo P.
Strocchi E.
Taddei S.
Trimarco B.
Vaccarella A.
Vailati S.
Valvo E.
Veglio F.
Vescovo G.
Volpe M.
Viazi F.
Vulpis V.
Zamboni S.
Zanchetti A.
Zaninelli A.
Zoccali C.



Latvia: 1

Romanova J.

Lebanon: 3

Berbari A.
Kabalan S.
Nasr E.M.

Lithuania: 12

Babarskiene M.R.
Danguole Sutkiene V.
Grigaleviciene A.
Maksvytis A.
Marcilioniene N.
Metrikiene V.-E.
Miglinas M.
Milvidaite I.
Norkiene S.
Sakalnikas G.
Sutkus J.
Zvinkliene G.

Norway: 9

Dahl K.J.
Fossum E.
Gerhardsen G.
Kjeldsen S.E.
Lund-Johansen P.
Omvik P.
Soma J.
Svilaas A.
Wessel-Aas T.

Poland: 41

Bieniaszewski L.
Chojnowska-Jezierska J.
Chrostowska M.J.
Czarnecka D.
Czekalski S.
Gaciong Z.
Gąsowski J.G.
Głuszek J.
Grodzicki T.
Gryglewska B.
Januszewicz A.
Kawecka-Jaszcz K.
Klocek M.
Knypl K.
Kokot F.
Kosicka T.M.
Krupa-Wojciechowska B.
Kuch-Wocial A.
Lewandowski J.
Lubaszewski W.
Małyszko J.
Małyszko J.S.
Manitius J.W.
Marczewski K.T.
Narkiewicz K.
Nartowicz E.
Nowicki M.
Posadzy-Mańczyńska A.
Pruszczyk P.
Pupek-Musialik D.

Rajzer M.
Rojek-Trebicka J.
Rynkiewicz A.
Suchecka-Rachoń K.
Symonides B.
Tykarski A.
Wacławek-Maczkowska J.
Widecka K.
Więcek A.
Wyrzykowski B.
Zdrojewski T.

Portugal: 57

Alcantara C.
Alcantara C.M.P.
Alcântara P.
Amado P.
Bastos J.M.
Brandão A.
Braz-Nogueira J.
Carmona J.P.
Carvalho M.
Castelo Branco Sousa M.
Clara J.G.
Correia L.C.
Costa F.D.
Cotter J.
Cunha P.
da Costa Carneiro F.M.M.
da Fonseca T.P.
da Silva G.N.
da Silva P.M.
Damasceno A.
de Freitas A.F.
de Macedo M.E.
De Sousa M.
dos Reis Martins L.F.
Duarte A.
e Silva A.M.
Falcão M.
Ferreira M.
Ferreira M.R.
Franco A.S.
Gonçalves F.J.M.
Lima M.J.
Machado F.S.
Maldonado J.
Martins Rodrigues T.M.
Monteiro A.
Morais M.F.
Moreiro C.S.
Mota Tavares F.
Nazaré J.
Neves P.L.
Nunes J.P.
Paixão Dias V.M.M.
Pêgo G.M.
Pereira da Silva A.P.
Pessanha P.
Pestana M.
Pinto F.C.M.
Polónia J.
Ranchodd R.
Rocha E.C.

Romano H.
Saavedra J.
Sampaio N.R.
Silva J.A.
Soares O.
Teles E.C.

Romania: 12

Aursulesei V.
Badila E.
Bartos D.
Cornel-Cezar Tudorica C.
Craiu E.
Dorabantu M.
Darabont R.O.
Ginghina C.
Homentcovschi C.-S.
Makó K.
Muraru R.M.
Serban C.

Russia: 2

Vereschagina Y.N.
Yakhantov D.A.

Saudi Arabia: 1

Almustafa B.A.

Serbia: 6

Bastac D.
Brankovic Z.
Lovic B.
Lovic D.
Stojanov V.
Stojanovic M.

Slovak Republic: 6

Balazovjeh I.
Benova K.
Kosmolova V.
Mazúr J.
Novotny R.
Snincák M.

Slovenia: 8

Accetto R.
Brguljan J.
Dobovisek J.
Dolenc P.
Klemenc M.
Kolsek B.
Pirc-Cercek O.
Salobir B.

Spain: 106

Abellan J.
Alcazar J.
Aranda J.
Aranda P.
Armario P.
Arrieta J.
Avila M.L.
Barrios V.
Bianchi J.L.

Botey A.
 Bueno J.
 Cabrera R.
 Calvo C.
 Campo C.
 Carmelo Diaz C.A.
 Carmona Gonzalez J.R.
 Casado S.
 Cases A.
 Castellarnau i Ibanez E.
 Cia P.
 Coca A.
 Cubero Iglesias G.
 de la Figuera M.
 de La Sierra A.
 Del Arco-Galan C.
 Diez J.
 Domenech M.
 Felip A.
 Fernandez R.
 Fernandez-Andrade C.
 Fernandez-Cruz A.
 Fernandez-Pinilla C.
 Fernandez-Vega F.
 Garcia Auria J.M.
 Garcia-Criado E.I.
 Garcia-Gallego F.
 Garcia-Polo I.
 Garcia-Puig J.
 Garcia-Robles R.
 Gil-Extremera B.
 Gonzales-Juanetey J.
 Gonzales-Gomez L.E.
 Gorostidi M.
 Hernandez del Rey R.
 Herrera J.
 Honorato J.
 Jaraby N.S.
 Jarillo D.
 Labios Gomez M.
 Laviades C.
 Linares Linares J.J.
 Lopez-Chozas J.M.
 Lopez-Eady M.D.
 Luque M.
 Lurbe A.
 Macias Nunez G.F.
 Madrigal Vilata J.
 Marin R.
 Martell N.
 Martí Canales J.C.
 Martín J.
 Martínez-Amenos A.
 Melero-Pita A.
 Michan A.D.
 Mora M.
 Morillas Blasco P.J.
 Motero J.
 Nieto J.
 Ocharan-Corchuera J.
 Ocon J.
 Olivan J.
 Oliveras i Serrano A.
 Orte L.

Ortiz A.
 Otero A.
 Palma-Gamiz J.
 Pallares-Carratala V.
 Pardell H.
 Ma Pascual J.
 Perez de Juan A.
 Plana J.
 Poch E.
 Pose-Reino A.D.
 Prieto M.
 Ramon M.C.
 Redon J.
 Robles N.R.
 Roca-Cusach A.
 Rodicio J.
 Rodriguez Perez J.C.
 Rodriguez Fernandez A.A.
 Romero Gonzalez R.
 Ruilope L.
 Ruiz-Fernandez M.D.
 Sancho M.
 Segura J.
 Sierra C.
 Sobrino J.
 Suarez C.
 Tamargo J.
 Telleache A.
 Toril Lopez J.
 Torre-Corballada A.M.
 Vergara Martin J.
 Villar J.
 Vivas F.

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Agevall S.
 Andersson O.K.
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 Carlberg B.
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 Dahlöf A.
 De Faire U.H.
 Edvinsson L.
 Eggertsen R.
 Ekblom T.S.A.
 Fagerberg B.
 Fagerström I.
 Frithz G.M.
 Hägg A.
 Haglund K.O.
 Hansson B.G.
 Hansson L.
 Hedner B.T.
 Herlitz H.V.
 Himmelmann A.
 Kahan T.
 Lernfelt B.M.
 Lind H.
 Lindholm L.H.
 Lindstedt I.
 Ljungman S.
 Manhem K.
 Mattiasson I.
 Nilsson P.

Nyström F.
 Östergren J.
 Ottosson A.M.
 Polhem B.
 Samuelsson O.G.
 Wall B.
 Wall U.
 Weiner L.
 Weiss L.G.
 Widgren B.R.
 Wirell M.P.

Switzerland: 19

Battegay E.
 Bianchetti M.G.
 Burnier M.
 Dieterle T.
 Erne P.
 Evequoz D.C.
 Ferrari P.
 Greminger P.
 Kiowski W.
 Lüscher T.F.
 Marmy A.
 Martina B.
 Meier P.
 Muggli F.
 Noll G.
 Pechère-Bertschi A.
 Ruschitzka F.
 Suter P.M.
 Zimmerli L.

The Netherlands: 21

Barendregt J.N.M.
 Bilo H.J.G.
 Blankestijn P.J.
 Braam G.B.
 Breed J.G.S.
 De Leeuw P.W.
 Deinum J.
 Doorenbos C.
 Hoogma R.
 Koomans H.A.
 Lambert J.
 Lenders J.W.M.
 Lieveise A.G.
 Ligtenberg G.
 Postma C.T.
 Smilde J.G.
 Smit A.J.
 Stehouwer C.D.A.
 Van Jaarsveld B.C.
 Van Zwieten P.A.
 Vos P.F.

Tunisia: 1

Jarraya F.

Turkey: 28

Arici M.
 Aksu M.
 Aydin L.N.
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Deger N.
Erđine S.
Eryonucu B.
Ersanlı M.
Genç N.
Gurgunlu A.
Ierigelen B.
Kabakçı G.
Koylan N.
Kurtoglu N.
Kürüm T.
Mutlu H.
Nalbantgil S.
Necmi A.
Oguz A.
Özbay G.
Özerkan F.
Saglikler Y.
Sonmez H.M.
Tavsanoglu S.
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Sirenko Y.
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Elliott H.
Ekpo E.B.
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Heagerty A.
Khong T.
Krentz A.J.
Iqbal P.
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Lobo M.D.
MacDonald T.
McVeigh G.
Potter J.
Poulter N.
Rajkumar C.
Russel G.I.
Samani N.J.
Sever P.
Shakespeare C.
Sharma P.
Sleight P.
Thomas M.
Thurston H.
Venkat-Raman G.
Williams B.

USA: 8
Duprez D.
Ejaz A.A.
Ferrario C.M.
Kanawati R.
Levy P.J.
Kotsis T.V.
Smith R.D.
Wasiluk A.

ESH Centres of Excellence in Hypertension/ /Cardiovascular Prevention

The European Society of Hypertension (ESH) is making continuous efforts to manage the burden of hypertension in Europe by stimulating scientific exchange related to knowledge about hypertension, and supporting and building organisations committed to work for the control of hypertension. The rationale for the ESH Excellence Centres had been created and further elaborated at the ESH Educational Committee meeting in Italy in July 2005. The ESH Council, chaired by ESH president Professor Sverre E. Kjeldsen, then formed an ESH Excellence Centre task force. Professors Csaba Farsang, Krzysztof Narkiewicz, Wolfgang Kiowski, Ettore Ambrosioni and Margus Viigimaa were members of this task force.

Based on the created ideas and established rules the first paper *Hypertension Excellence Centres of the European Society of Hypertension* was published in the *Journal of Hypertension* in 2006 [1]. By definition, the ESH Excellence Centre is an institution providing the highest level of both inpatient and outpatient hypertension care, including surgical and vascular interventions, and assessment of global cardiovascular risk. Requirements and tasks for the ESH Hypertension Excellence Centres were described in this paper.

Numerous applications have been submitted in 2006 to establish ESH Hypertension Excellence Centers, which have been supported by national societies for Hypertension. The ESH Scientific Council has approved 65 centres in the first round of applicants, representing 13 European countries. The list of ESH Hypertension Excellence Centres was published in the journals endorsed by the ESH (*Journal of Hypertension* and *Blood Pressure*). Official certificates were handed out to the heads of these centres during the 17th European Meeting on Hypertension in Milan, June 15–19, 2007.

The second paper “ESH Hypertension Excellence Centres: A New Strategy to Combat an Old Foe” was published in the *Journal of Hypertension* in 2007 [2]. This paper has described the rationale, ideology and requirements of the ESH Excellence centres and has invited more high-level hypertension centres from different European countries to join this unique Pan-European network. The main purpose of this network is to provide a stable and organised European platform for the advancement of hypertension prevention and control. By marshalling an array of forces into a vast united front and positioning this strength through a

network scattered across the continent, these ESH Centres of Excellence provide the highest level of both inpatient and outpatient hypertension care, including surgical and vascular interventions, and assessment of global cardiovascular risk.

All ESH Hypertension Excellence Centres have in-house access to multi-disciplinary services, such as those provided through cardiology, nephrology, endocrinology, gynaecology, ophthalmology, neurology, urology, intensive care, surgery, vascular surgery, radiology, angiography (including percutaneous transluminal angioplasty with stenting) and clinical chemistry (including special tests for diagnosis of secondary forms of hypertension). All centres have a high number of hypertension-related hospitalisations and outpatient visits per year.

The Excellence Centres have expertise for ambulatory blood pressure monitoring, echocardiography, and vascular ultrasound, not to mention the ability to search for secondary hypertension through laboratory tests and imaging procedures (arteriography; renal and adrenal ultrasound, computed tomography, and magnetic resonance imaging). The heads of the approved centres have international recognition in hypertension care/research as evaluated by the ESH Scientific Council. Doctors/scientists working in the centre of excellence have appropriate specialisations (internal medicine, cardiology, nephrology, endocrinology, angiology, paediatrics, molecular medicine, etc.). Their clinical experience in hypertension management has been documented by having a ESH Clinical Hypertension Specialist diploma.

The specific tasks for each Hypertension Excellence Centre will be:

- to provide the best possible clinical management of patients with high blood pressure;
- to set standards in the diagnostics and treatment of hypertension in regions of service;
- to evaluate and improve blood pressure control for primary care, specialists and hypertension centres in regions of service;
- to offer continuing medical education opportunities focusing on teaching primary-care physicians in the region of service;
- to carry out research (experimental/clinical/epidemiology) represented by papers in peer-reviewed international as well as in local scientific journals;
- to co-operate with other ESH Hypertension Excellence Centres to increase the understanding concerning the importance of hypertension as a major health risk in Europe;
- to co-operate with the ESH Scientific Council to elaborate new hypertension control strategies in Europe.

The new initiative of the Network of ESH Hypertension Excellence Centers in France has been put forward by Professor Pierre-François Plouin. This national network consists of 10 French ESH Excellence Centers. The staffs of the centers of excellence include several present or former presidents of the French Society of Hypertension (SFHTA), also European and International Societies of Hypertension. Clinical, research and academic collaboration has been established between French ESH Hypertension Excellence Centres.

The ESH Council recently decided to recognise the ESH Blood Pressure and Vascular Protection Clinics. The main purpose of a Blood Pressure and Vascular Protection Clinic is to provide expert medical advice and care for patients with hypertension. However, there are clearly quite a number of other objectives of a blood pressure service delivered through a clinic, which are important to the healthcare system. The final shape and organisation/structure of a Blood Pressure and Vascular Protection Clinic may depend on the objectives which may differ among clinics, different local health care systems and change with time. The paper “Setting-up a Blood Pressure and Vascular Protection Clinic: Requirements of the European Society of Hypertension” was published in the *Journal of Hypertension* in 2010 [3].

ESH Council has decided that Blood Pressure and Vascular Protection Clinics would be best managed through the existing Excellence Centre Framework. The goal of this is to allow specialists running blood pressure or cardiovascular risk services, but without the critical mass, to become an Excellence Centre and be plugged into this ESH Framework through your Excellence Centre. The coordination of the interaction with these Blood Pressure Clinics will be at the Excellence Centre level on a hub and spoke model. It would be of value for Excellence Centres to consider partnering Blood Pressure Clinics to augment capacity, as inevitably it will be attractive and more efficient for large-scale programs to engage with larger Centres who offer access to a large patient base.

The ESH Council has decided to approve applications twice a year at ESH Council meetings (deadlines for submission June 30 and December 31). Applications should be supported by a letter of endorsement from the National Society. The list of newly approved ESH Hypertension Excellence Centers is published annually in the journals endorsed by the ESH (*Journal of Hypertension* and *Blood Pressure*) and displayed on the ESH website (www.eshonline.org). Applicants will be notified of acceptance and will be invited to attend the European Meeting on Hypertension in June to receive the diploma.

ESH Hypertension Excellence Centre network has become a large Pan-European network. As of February 2011, the total number of approved ESH Centres of Excellence is 138 (8 of them are associated centres outside Europe). The Centres of Excellence are located in 33 European countries and the associated centres in 6 non-European countries (Australia, Brazil, China, Israel, Lebanon and Venezuela).

The current list of ESH Hypertension Centers of Excellence

Albania: 1

Service of Internal Medicine and Hypertension, UHC Mother Teresa, Tirana
Mihal Tase

Australia: 1

Alfred & Baker Hypertension Network
Melbourne
Markus Schlaich

Belarus: 1

Republican Scientific and Practice Centre “Cardiology”, Minsk

Aleksandr G. Mrochek

Belgium: 7

Division of Hypertension and Cardiovascular Rehabilitation

University Hospital Gasthuisberg, Leuven

Robert H. Fagard

Zna Ziekenhuis Netwerk Antwerpen

Dept. Nephrology-hypertension

Ronald Daelemans

Centre Universitaire d’approche diagnostique et thérapeutique de l’hypertension artérielle CHU de Liège

Jean-Marie H. Krzesinski

UZ Gent Hypertension Excellence Centre

Luc M. Van Bortel

Hypertension Clinic

Erasme Hospital, Brussels

Philippe van de Borne

Department of Nephrology and Hypertension

Universitair Ziekenhuis Brussel (VUB)

Patricia Van der Niepen

Hypertension Clinic, Cardiology Department

Cliniques Universitaires Saint-Luc, Brussels

Alexandre Persu

Brazil: 1

Federal University of Rio de Janeiro

Elizabeth Muxfeldt

Bulgaria: 2

Tokuda Hospital Sofia

Svetla Torbova

1st Cardiology Clinic, University Hospital “Sveta Marina”, Varna

Vera Sirakova

China: 1

Fu Wai Hospital, Chinese Academy of Medical Sciences & Peking Union Medical College, Beijing

Lisheng Liu

Croatia: 1

Center for Hypertension, University of Zagreb

Bojan Jelakovic

Czech Republic: 7

Center for Cardiovascular Prevention
Thomayer University Hospital, Prague
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Department, IInd Internal/Cardiology/Angiology Department,
Department of Nephrology, Charles University, Prague
Jiri Widimský Jr

Center for Arterial Hypertension and Vascular Health, Department of Internal
Medicine II, Charles University Medical School and University Hospital Pilsen
Jan Filipovský

Division of Preventive Cardiology, Ist Department of Internal Medicine, University
Hospital in Hradec Králové
Jirí Ceral

Internal Cardiology Department, Brno University Hospital
Jindrich Špinar

IInd Department of Internal Medicine, St. Anne's University Hospital, Brno
Miroslav Souček

University Hospital Olomouc
Jan Václavík

Estonia: 1

Tallinn Hypertension Excellence Centre
North Estonia Medical Centre
Margus Viigimaa

Denmark: 2

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Michael Hecht Olsen

Hypertension Clinic, Holbaek University Hospital
Hans Ibsen

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Ilkka M. Kantola

Helsinki Hypertension Centre of Excellence
Ilkka Tikkanen

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CHU Timone Marseille

Bernard Vaïsse

Service de Médecine Interne et Hypertension Artérielle

CHU Rangueil Toulouse

Bernard Chamontin

Centre de Prévention des Maladies Cardiaques et Vasculaires

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University Hospital Coventry & Warwickshire — Warwick Medical School
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Nottingham University Hospitals NHS Trust
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John Webster

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The ESH Portal and the ESH eLearning project

The European Society of Hypertension (ESH) web site was planned within the ESH Council in 2000 to not only support the activities of the ESH in general, but also to find a way to easily spread information about activities, working groups, meetings, etc. Later on, the official ESH website www.eshonline.org was launched and presented at the ESH Annual Meeting held in Milan in June 2001. The website provided information on ESH, Membership, Annual Meetings and Guidelines, links to hypertension-related journals, and other hypertension and cardiovascular societies. Thomas Hedner was nominated Web-Editor from 2001 through 2002. In 2002, the website was updated and new features and new educational activities were added from the ESH-ISH meeting held in Prague the same year such as webcasts of large clinical trials, teaching seminars for the EHS Programme, interactive web-courses including video, audio and multiple choice questions, summaries of the most recent studies presented during the meetings, daily news: information, people, studies, facts and more from the meetings, and information on membership, future meetings and other ESH activities. This helped to increase the interest in our society and its activities in a very effective way.

From 2003 through 2006, Anthony Heagerty collaborated as the Web-Editor. The website made great progress in these three years under his direction and supervision, becoming a unique website and educational resource for hypertension specialists, not only within Europe but also in many parts of the world.

Krzysztof Narkiewicz and Peter M. Nilsson took over from Anthony Heagerty as Web-Editors in June 2006, and continued to do a dedicated job, including writing editorials and introducing poll questions. The hit rate of visitors on a monthly basis more than doubled under their joint editorship.

The new online ESH Portal in 2009

In March 2007, www.eshonline.org changed its appearance. New graphics and structures were implemented and registration on the website was necessary to access the ESH 2007 Meeting Highlights, Guidelines, and Teaching Seminars. In the same year discussions also starting regarding the transition from a website to a Portal with added intranet facilities, and that was soon underway. Two years later in 2009, the new ESH online Portal was launched at the ESH 2009 Annual Meeting in Milan. The new Portal completely replaced the former website. The Portal had a new design and architecture, as well as improved search options. Application

for Membership, Hypertension Specialist status and Excellence Centres were now available online. This also applied for information and applications to the annual ESH Summer School and ESH Advance Course.

The Portal content can be managed, edited, updated and fully controlled by authorized administrative users through a content management system (CMS). The membership/Hypertension Specialist database provides updated information on all membership/Hypertension Specialist issues.

In October 2010, Mark Caulfield was nominated co-editor of the Portal together with Peter M. Nilsson.

Currently the content from Annual Meetings includes:

- Journal Highlights and News: weekly hypertension journal reviews and news from international journals, meetings and events;
- Highlights from the Annual European Meeting on Hypertension: text summaries on breaking news, webcasts, audio/video interviews, and daily coverage of information;
- Teaching Seminars from the Annual European Meeting on Hypertension: audio/video webcasts of the teaching seminars/educational sessions;
- Industry-supported Satellite Symposia: audio/video webcasts with original slides, text transcriptions/summary, as well as author biography.

The web site and the new Portal have been developed in collaboration with Infomedica, and during recent years the excellent assistance of web staffer Ms. Robyn Lynch has contributed to the success of the web site and Portal. This was especially clear since 2009 when a new system was introduced to calculate the total number of visits to the web site as well as the number of unique visitors on a monthly basis.

We have been able to collect some statistics on the number of registered users of www.eshonline.org. Through the years the numbers have ranged from 3.175



Photo 63. Snapshot of the ESH Portal

(2005), 3.904 (2006), 7.123 (2007), 9.727 (2008), 7.548 (2009 when a New Portal was introduced — new registration requested), 7.658 (2010), and 7.742 registered users in February 2011. The number of ESH members has increased from 821 in October 2008 to 931 in February 2011, with corresponding figures for ESH Hypertension Specialists increasing from 664 to 957, the number of ESH Excellence Centres increasing from 86 to 128, and the number of listed National Societies from 37 to 39.

In summary, the web site (www.eshonline.org) offers today not only summaries from meetings and scientific news related to hypertension, but also an intranet service to members. In addition, all important documents from the ESH Council have been uploaded as PDF files on the intranet, protected by special log-in procedures.

The ESH eLearning program

Michael H. Olsen has been responsible for the development of the new eLearning program, launched in 2010, which is of great importance for the re-accreditation that all ESH members have to undergo on a bi-annual basis. This is the way he describes the developments: “My engagement in ESH eLearning began in October 2009, in Valencia where Krzysztof Narkiewicz asked me whether I would consider being in charge of ESH eLearning. As the youngest member of the ESH Council I was overwhelmed by the offer, but Krzysztof ensured me that I could count on the help of everybody. I knew that the ESH webpage, including ESH eLearning, was an important part of the future of ESH and accepted the challenge. Initially, I was a bit worried about the amount of work associated with the task. However, I very quickly realized that the real strength of the ESH Council and its contacts within ESH laid within their ability to carry out projects together. Everybody contributed with text, presentations and questions within their field of expertise. Initially, the idea was to use the ESH/ESC 2007 guidelines as the frame for the eLearning program. However, we soon realized that this solution, although practical, would resemble a traditional book too much and not take advantage of the electronic media. Therefore, we decided to make several video recordings covering every important topic within hypertension and use these as the frame for the eLearning program. Once more, everybody contributed willingly, although the recordings were done either during the Master Course in St. Moritz March 2010, or in Oslo during the annual ESH Congress June 2010, both of which represented very busy times for all people involved. Infomedica was very helpful throughout the whole process and already at our Educational Meeting in July 2010, we had a preliminary version ready, and in September 2010, the ESH eLearning program was launched on the ESH webpage. Currently, we have had several hundred users already. The eLearning program will be updated continuously and with time be more and more interactive. Only the future can tell how this adventure in cooperation will develop.”

The content of the eLearning program

The e-learning system is built upon 23 live presentations, called featured topics, by experts within each topic covering most aspects within hypertension, and presented on our web-site. In relation to each presentation you will find some multiple-choice

questions selected by experts to emphasize the key messages in their presentations. All these questions are put together in the end to a broad questionnaire through which you may test your knowledge within hypertension.

The presentations are linked to 13 chapters which to a large degree resemble the ESH/ESC guidelines 2007:

- Chapter 1: Introduction and purposes
- Chapter 2: Epidemiology and pathophysiology
- Chapter 3: Definition and classification of hypertension
- Chapter 4: Diagnostic evaluation
- Chapter 5: Evidence for therapeutic management of hypertension
- Chapter 6: Therapeutic approach
- Chapter 7: Treatment strategies
- Chapter 8: Therapeutic approaches in special conditions
- Chapter 9: Treatment of associated risk factors
- Chapter 10: Screening and treatment of secondary forms of hypertension
- Chapter 11: Follow-up
- Chapter 12: Implementation of guidelines
- Chapter 13: References

The content in each chapter may differ, but will consist of one or more of the following elements:

- text sections from the ESH/ESC Guidelines 2007 and/or ESH Reappraisal of European Guidelines 2009;
- ESH Newsletters;
- reviews from the special hypertension issue of Archives of Medical Science, 2009;
- power-point lectures made by European specialists within that specific topic.

The learning objectives are:

- to increase your awareness of the importance of hypertension for world health;
- to increase your awareness of the importance of cardiovascular risk assessment and the contribution of different markers of subclinical organ damage;
- to enable you to collect traditional cardiovascular risk factors and markers of subclinical organ damage to assess cardiovascular risk;
- to enable you to identify patients with hypertension;
- to enable you to choose the most relevant antihypertensive treatment strategy for the individual patient;
- to enable you to handle hypertensive emergencies and resistant hypertension;
- to enable you to also treat hypertension in special conditions;
- to enable you to identify patients with secondary hypertension;
- to make you aware of economic considerations regarding antihypertensive treatment;
- to make you aware of the way to organize a hypertension center.

The ESH will benefit very much from this new eLearning system as it is a tool to enhance knowledge and re-accreditation among its members. There will be an evaluation of how it works within the next two years.

Journal of Hypertension and Blood Pressure

The Journal of Hypertension

The *Journal of Hypertension* was first published in England in 1983 by John Swales, a professor of medicine at the University of Leicester and Editor-in-Chief for the first five years. It was then edited by John Reid, Regius Professor of Medicine at the University of Glasgow until the end of 1994. Since 1995, the Editor-in-Chief has been Alberto Zanchetti, Emeritus Professor at the University of Milan and Scientific Director of the Istituto Auxologico Italiano, Milan, Italy.



Photo 64. *Journal of Hypertension* cover

In 1984, the *Journal of Hypertension* became the official journal of the International Society of Hypertension (ISH). After the founding of the European Society of Hypertension it became the official journal of both societies. The ESH had considered forming its own journal but it was decided that it was better to consolidate forces and have a journal with both societies collaborating together.

A board of management decides on the journal's policies and is comprised of representatives of the ISH, ESH and the publisher, plus the editor-in-chief. The current Editor has a team of international Associate Editors located in different parts of the world including Australia, the US, England, and elsewhere in Europe.

The everyday running of the journal is done in Milan where the Editor-in-Chief is helped by four Executive Editors (Professors Guido Grassi, Alberto Morganti, Gianfranco Parati and Andrea Stella) and a Deputy Editor, Professor Giuseppe Mancia. When a paper arrives it is allocated to one of the Executive Editors who selects the reviewers and corresponds with them and the author. After the reviews come back, the Editor and the Milan committee make a decision about whether to accept or reject the paper and whether to ask for major or minor revisions.

The *Journal of Hypertension* is published monthly and has just over 200 pages per issue. In 2010, it received 1.106 manuscripts and the acceptance rate for original

research papers was 27%. About 50% of these papers originated from Europe, 18% from the US and Canada and the remainder from Australia, China, Japan and Latin America.

The journal is devoted to basic and clinical research papers in hypertension. But the topic of hypertension is broad and it also publishes papers on subjects of more general interest such as cardiovascular risk, blood pressure control and stroke. Roughly one-third of these papers are basic research and two-thirds are clinical research.

The journal publishes guidelines from the ISH, the latest of which were in 2003. Joint guidelines on hypertension from the ESH and the European Society of Cardiology were published in the *Journal of Hypertension*, first in 2003 and again in 2007. It also publishes ESH guidelines, for example guidelines for management of high blood pressure in children and adolescents in 2009, and guidelines for blood pressure monitoring at home in 2008. More recently the *Journal of Hypertension* has begun publishing guidelines from other organisations, such as the Latin American guidelines on hypertension in 2009.

The readership is broad and attracts people working in the cardiovascular field as well as nephrologists, endocrinologists, epidemiologists, pharmacologists, physiologists, molecular biologists and geneticists.

The impact factor was 2.318 in 1995 and progressively raised to 5.1 in 2009 and 4.988 in 2010. In the impact factor listings, the *Journal of Hypertension* is classified as 8th out of 60 peripheral vascular disease journals. The two hypertension journals with the highest impact factor are the American Heart Association's *Hypertension* and the *Journal of Hypertension*.

While he believes that review papers are good for teaching and are an important part of the journal, the current Editor tries not to publish too many. More than 80% of the space is devoted to original research.

About 10 years ago, long before other cardiovascular journals adopted the practice, the *Journal of Hypertension* introduced editorial commentaries which are written by a reviewer on original research that is controversial or of general interest. They have been popular with readers, and sometimes a few of them are read more often than the original paper.

To get the best papers in hypertension requires a swift turnaround of manuscripts. The Milan committee rejects 15 to 20% of submissions upfront and the remaining 80% are sent to reviewers. The time to a first decision is usually less than one month. The final decision time depends on the number of revisions and speed of the author.

After acceptance, papers are published electronically; they appear in the hard copy a couple of months later. The liaison with two important scientific societies in the field of hypertension has been good for the journal. The journal also publishes abstracts from the meetings of both the ESH and ISH, which are yearly for the ESH and every two years for the ISH. Such meetings are a good forum for displaying the journal and making contact with readers.

Blood Pressure: a journal devoted to the publishing of clinical hypertension research

Raising Blood Pressure

From its start in 1992, *Blood Pressure* has been a journal dedicated to clinical hypertension research, with a focus on outcome research and large clinical trials. Already in the first editorial, the vision and mission of the young journal was laid out by its founders, Lennart Hansson, Thomas Hedner and Sverker Jern: “As editors of a new journal we are well aware of the potential difficulties that lie ahead, particularly since our ambition is to make *Blood Pressure* a journal that meets the highest scientific standards” [1]. However, having

summarized the support we enjoyed from the start from the international scientific community, we concluded “... [that] we will perhaps be excused for beginning to feel slightly optimistic”. From its introduction, the journal enjoyed the full support and endorsement of the European Society of Hypertension (ESH). In 2000, at the Göteborg ESH meeting, *Blood Pressure* celebrated its 10-year anniversary, and in 2010 came the time to celebrate the 20th anniversary at the ESH meeting in Oslo [2, 3].

Initially, *Blood Pressure* was published by the Scandinavian University Press. Today after a consolidation within the scientific publishing sector, Taylor & Francis Ltd is the publisher of *Blood Pressure* on license from the Scandinavian Foundation for Cardiovascular Research, a foundation dedicated to the support of Nordic hypertension research.

After the early death of Lennart Hansson in 2002 [4, 5], the board of Editors of *Blood Pressure* was renewed in order to provide a European and US editorial leadership, with Sverre Kjeldsen joining the Board of Editors of the journal in 2003, Krzysztof Narkiewicz in 2005, and Suzanne Oparil in 2006.

The extensive clinical hypertension expert panel, serving on the Editorial Board of *Blood Pressure*, represents the leaders of global clinical hypertension research. Over the years, all ESH council members have served on the *Blood Pressure* Editorial Board. Today the journal enjoys the support of 150 hypertension experts from all over the world, serving on the Editorial Board. During its history, three of the *Blood Pressure* editors, Lennart Hansson, Sverre Kjeldsen and Krzysztof Narkiewicz, have served as presidents of the European Society of Hypertension.

Blood Pressure development

In terms of science metrics, *Blood Pressure* (Journal ISSN 0803-7051) has witnessed an increasing popularity as a publisher of high-impact clinical research, which is



Photo 65. *Blood Pressure* cover

reflected by a steadily rising impact factor since the early 1990s. In more recent years, the impact of the journal's published papers have been increasingly cited, and the 2008 impact factor was 1.625 (45 articles, 918 citations). In 2009, the impact factor had further increased to 1.773 (45 articles 916 citations).

One extensively cited original paper published in *Blood Pressure* was the first description of the PROBE (Prospective Randomized Open Blinded Endpoint) design for large clinical outcome trials [6]. This paper outlined the new PROBE technique for prospective randomized open-blinded outcome trials with "hard" endpoints, and the method became instantly adopted for use in several large clinical morbidity and mortality outcome studies, such as the STOP-2, CAPPP, NORDIL, ANBP 2, SCOPE, HYVET, COPE, FEVER, MIRACLE to name a few. Long-term clinical outcome research generally has had a major impact on the way medicine is practiced worldwide. However, estimations indicate that only a fraction, or some 10–20 per cent of all medical interventions, are documented to have an appropriate effect in controlled clinical trials (US office of technology assessment). Therefore, pragmatic practices simplifying and increasing such evaluations and efforts in relevant patient populations should be encouraged by medical publishers and other scientific stakeholders.

Blood Pressure future vision and mission

Within the area of clinical hypertension research, the focus on hypertension in a global health perspective will increase. *Blood Pressure* will, therefore, in the future remain an important channel for dedicated researchers in hypertension outcome research. There is also an ambition to publish important scientific articles in the area of hypertension pathophysiology and risk assessment as well as management of hypertension in high-risk patients, as well as on a population basis.

Blood Pressure will continue to increasingly focus on publishing high-quality clinical hypertension research, research that matters for patients, and that enjoys a high reputation among hypertension specialists and practicing physicians. By doing that we hope to enjoy a continuing support among our readers, supporters, patients, the general public, and other policy makers. With that mission and future strategy in mind, we will keep a focus on publishing clinically-related high quality papers related to blood pressure and hypertension research, and enjoy continued endorsement from the European Society of Hypertension.

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4. Oransky I, Lennart Hansson. The Lancet 2002; 360: 1991.
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ESH Scientific Newsletters

The European Society of Hypertension regularly presents Clinical Practice Newsletters with information on the latest news and research available. Fifty newsletters were published between 2000 and 2011. The ESH Newsletters have been edited by Sverre E. Kjeldsen (2000–2005) and by Krzysztof Narkiewicz (2005–today). All of the following issues are available in PDF format on the ESH Portal.

TREATMENT OF HYPERTENSION IN PATIENTS WITH TYPE 2 DIABETES MELLITUS

Peter M. Nilsson, Renata Cífková, Sverre E. Kjeldsen

HYPERTENSION IN PREGNANCY: RECOMMENDATIONS FOR DIAGNOSIS AND TREATMENT

Renata Cífková

HOW WELL IS HYPERTENSION CONTROLLED IN EUROPE?

Serap Erdine

HYPERTENSION IN CHRONIC RENAL FAILURE

Jose L. Rodicio, Jose M. Alcazar

HOW TO HANDLE RENOVASCULAR HYPERTENSION

Jose M. Alcazar, Jose L. Rodicio

ISOLATED SYSTOLIC HYPERTENSION: Cardiovascular risk and treatment benefits

Csaba Farsang, Peter Sleight

PATIENT ADHERENCE AND THE PHARMACOLOGICAL TREATMENT OF ARTERIAL HYPERTENSION

Menno Pruijm, Marie-Paule Schneider, Michel Burnier

CYCLOSPORIN-INDUCED HYPERTENSION

Renata Cífková, Hermann Haller

1999 WHO/ISH HYPERTENSION GUIDELINES — HIGHLIGHTS & ESH UPDATE

Sverre E. Kjeldsen, Serap Erdine, Csaba Farsang, Peter Sleight, Guiseppe Mancia

HYPERTENSION AND LEFT VENTRICULAR HYPERTROPHY

Enrico Agabiti Rosei, Maria Lorenza Muiesan

ASSESSMENT OF PRECLINICAL TARGET ORGAN DAMAGE IN HYPERTENSION: CAROTID INTIMA-MEDIA THICKNESS AND PLAQUE

Enrico Agabiti Rosei, Maria Lorenza Muiesan

HOME BLOOD PRESSURE MONITORING

Gianfranco Parati, Grzegorz Bilo, Sverre E. Kjeldsen, Giuseppe Mancia

HYPERTENSION IN CHILDREN AND ADOLESCENTS

Empar Lurbe

HYPERTENSION AND CORONARY HEART DISEASE

Jean-Philippe Baguet, Jean-Michel Mallion

RESISTANT HYPERTENSION

Serap Erdine

MICROALBUMINURIA IN TYPE-1 DIABETES MELLITUS

Josep Redon

INTERACTIONS BETWEEN ANTIHYPERTENSIVE AGENTS AND OTHER DRUGS

Peter A. van Zwieten, Csaba Farsang

BENEFICIAL COMBINATIONS OF TWO OR MORE ANTIHYPERTENSIVE AGENTS

Peter A. van Zwieten, Csaba Farsang

CLINICAL VALUE OF AMBULATORY BLOOD PRESSURE MONITORING

Jean-Michel Mallion, Jean-Philippe Baguet, Giuseppe Mancia

HIGH BLOOD PRESSURE, SMOKING AND CARDIOVASCULAR RISK

Helios Pardell, José L. Rodicio

TREATMENT OF HYPERTENSION IN DIALYSED PATIENTS

István Kiss, Csaba Farsang, Jose L. Rodicio

HIGH BLOOD PRESSURE, ALCOHOL AND CARDIOVASCULAR RISK

Ramon Estruch, Antonio Coca

EXERCISE AND HYPERTENSION

Athanasios J. Manolis

HYPERTENSION AND ARRHYTHMIA

Jean-Philippe Baguet, Serap Erdine, Jean-Michel Mallion

OBSTRUCTIVE SLEEP APNEA AND HYPERTENSION

Jean-Philippe Baguet, Krzysztof Narkiewicz, Jean-Michel Mallion

CONTROL OF HYPERTENSION IN PATIENTS WITH PERIPHERAL ARTERY DISEASE

Denis L. Clement

PREVENTION OF TYPE 2 DIABETES MELLITUS WITH ANTIHYPERTENSIVE DRUGS

Peter M. Nilsson, Renata Cifková, Sverre E. Kjeldsen, Giuseppe Mancia

TREATMENT OF HYPERTENSIVE URGENCIES AND EMERGENCIES

Enrico Agabiti Rosei, Massimo Salvetti

TREATMENT OF HIGH BLOOD PRESSURE IN THE ELDERLY

Sverre E. Kjeldsen, Aud-E. Steneshjem, Ingrid Os, Thomas Hedner, Gordon T. McInnes

HYPERTENSION AND HEART FAILURE

Enrico Agabiti Rosei, Maria Lorenza Muiesan, Wolfgang Kiowski

HYPERTENSION AND MACROVASCULAR DISEASE

Stéphane Laurent

HYPERTENSION AND SEXUAL DYSFUNCTION

Athanasios J. Manolis, Michael Doumas, Margus Viigimaa, Krzysztof Narkiewicz

DISCOVERING THE GENETIC DETERMINANTS OF HYPERTENSION

Sandosh Padmanabhan, Olle Melander, Claire Hastie, Christian Delles, Anna F. Dominiczak

THE MICROCIRCULATION AND THE HAEMODYNAMICS OF HYPERTENSION

Harry A.J. Struijker-Boudier, Enrico Agabiti Rosei

STATINS AND HYPERTENSION

Renata Cífková, Peter M. Nilsson

MICROALBUMINURIA IN ESSENTIAL HYPERTENSION

Josep Redon, Fernando Martinez, Jose M. Pascual

HYPERTENSION IN ATHLETES

Robert H. Fagard

THE METABOLIC SYNDROME IN HYPERTENSION

Josep Redon

HYPERTENSION AND STROKE

Cristina Sierra, Antonio Coca

DIETARY SODIUM INTAKE AND HYPERTENSION

Michel Burnier, Murielle Bochud, Roland Schmieder

HYPERTENSIVE RETINOPATHY

Roland E. Schmieder

HYPERTENSION AND ATRIAL FIBRILLATION WITH EMPHASIS ON PREVENTION

Sverre E. Kjeldsen, Tonje A. Aksnes, Roland E. Schmieder

MANAGEMENT OF PHEOCHROMOCYTOMA-PARAGANGLIOMA

Maurizio Castellano, Jacques W. Lenders, Pierre-Francois Plouin, Enrico Agabiti Rosei

PRIMARY ALDOSTERONISM

Franco Mantero, Gian Paolo Rossi, Enrico Agabiti Rosei

SUBCLINICAL BRAIN DAMAGE AND HYPERTENSION

Christophe Tzourio, Peter M. Nilsson, Angelo Scuteri, Stéphane Laurent

HYPERTENSION AND SLEEP

Jean-Louis Pépin, Anne-Laure Borel, Jean-Phillipe Baguet, Renaud Tamisier, Patrick Lévy, Jean-Michel Mallion

PERIOPERATIVE SCREENING AND MANAGEMENT OF HYPERTENSIVE PATIENTS

Athanasios J. Manolis, Serap Erdine, Claudio Borghi, Kostas Tsioufis

CARDIOVASCULAR RISK PROFILE AND ANTIHYPERTENSIVE TREATMENT

Michael Hecht Olsen, Eva Prescott, Peter M. Nilsson, Renata Cífková

THE ROLE OF URIC ACID IN HYPERTENSION, CARDIOVASCULAR EVENTS, AND CHRONIC KIDNEY DISEASE

Adel E. Berbari

HYPERTENSION AND AORTIC DISEASE

Jean-Philippe Baguet, Olivier Chavanon, Carmine Sessa, Frédéric Thony, Pierre Lantelme, Gilles Barone-Rochette, Jean-Michel Mallion

The ESH relationship with National Societies

Ever since the European Society of Hypertension (ESH) was started formally in 1989, the relationship with national societies of hypertension, both inside and outside of Europe, has been a main priority. The ESH initiated and maintained a commitment to establish a stable and organised European platform for scientific exchange in hypertension aiming to improve not only the quality of research, but also to increase knowledge of hypertension and vascular risk all over Europe. Advances in the knowledge of hypertension and cardiovascular care, as well as improvements in prevention and clinical care, contribute to the reduction of hypertension-associated morbidity and mortality across Europe.

During the 22-year existence of the ESH, the list of national societies of hypertension which cooperate with the ESH has grown to presently include a total of 37 European and Euro-Asian societies with relationships with the ESH, and many others from the outside with informal links. These have been possible thanks to the efforts of several Council members: Renata Cifkova integrating new national societies of Central and Eastern Europe; Athanasios Manolis in the Middle-East countries (Photo 66) and Antonio Coca in Central and Latin-America (Photos 67 and 68). During 2011, the Presidents of the Pan-Arab Society of Hypertension, Latin



Photo 66. Pan Arab and European Hypertension Conference organized by Dr. Jafar Al-Said in Bahrain (February 11–13, 2011)



Photo 67. First ESH Master Course in Mexico DF on April 27th, 2011. Prof. Manolis (left) and Prof. Coca (middle) during the discussion conducted by Prof. Parra (right), the current President of the Mexican Division of LASH (Latinamerican Society of Hypertension)



Photo 68. The European speakers during the First ESH Master Course in El Salvador on April 29th, 2011 for Central America. ESH was represented (from the left) by Prof. Zanchetti, Prof. Coca, Prof. Redón, and Prof. Manolis

American Society of Hypertension (LASH), the Mexican Division of the LASH, the Argentina Society of Hypertension, the Venezuela Society of Hypertension, the El Salvador Society of Hypertension, and the Central American Society of Hypertension have expressed their deep interest in having an institutional link with our Society.

The origins and composition of members vary largely from country to country. Starting as sections of different specialties or from the Hypertension Leagues, they were gaining their own life, bringing to the membership a wide range of medical disciplines such as cardiology, nephrology, internal medicine, primary care, clinical pharmacology and even endocrinology, with pediatrics or neurology being the membership origin.

The National Societies have grown not only in numbers, but also in membership and meeting activities. Many societies run their own web pages and produce printed materials in national languages, while at the same time doing a great job spreading knowledge about the risk of hypertension and improving the quality and excellence of care in hypertension. In parallel with their own activities, the involvement of the National Hypertension Societies in Europe has always been the main purpose for the ESH Scientific Council. In close cooperation with them, the ESH has been expanding in activities including the organisation of congresses, endorsement of congresses and other meetings, and the organisation of a number of educational activities, including summer schools and advanced courses. The success of the ESH-ESC Guidelines from 2003 and 2007, as well as the ESH Reappraisal of European Guidelines from 2009, and other guidelines, such as the ESH Guidelines in Children and Adolescents, which have been translated into many national languages, contribute to strengthening links between the ESH and various national societies all over the world.

Contributions to ESH Annual Meetings

A main activity of the ESH is the Annual Meeting which convenes specialists from all over the world. The contribution of the National Societies to the success of the event is shown in the following figures, listing the number and country origin of the participants. As observed in Figure 1, the number of participants in the Annual Meeting of the ESH is increasing from all parts of the world, not just only from Europe.

The participants from European countries are shown in Figure 2.

Likewise, members of different National Societies contribute to the scientific programme with lectures and oral-poster presentations. The number of abstracts from different parts of the world has also increased, as shown in Figure 3.

The distribution of the abstracts from European countries is shown in Figure 4.

Current Status of the Relationship

The relationship between the ESH and the National Societies has developed very well over the years and is expected to develop further. In this regard a recent document, posted on the web-site, summarizes the joint activities which are now

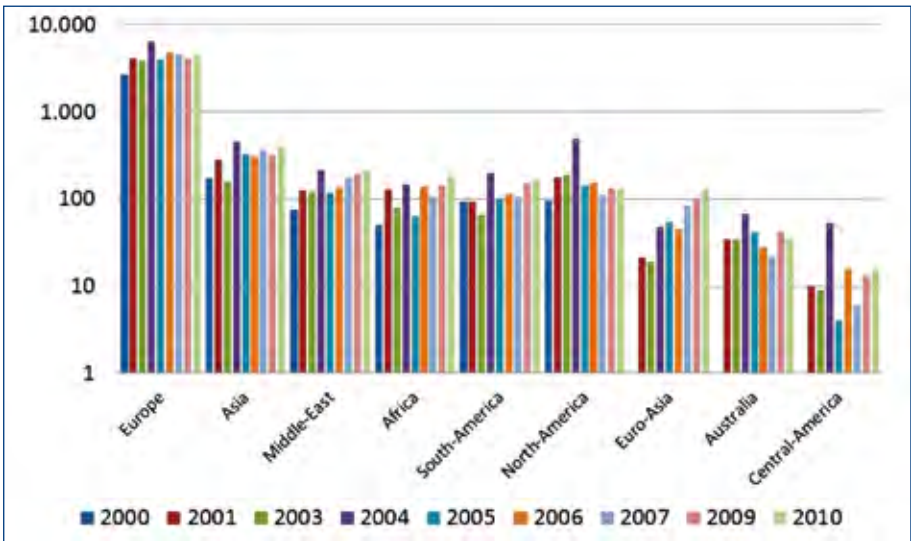


Figure 1. Number and origin of participants in the ESH Annual Meetings (2000–2010)

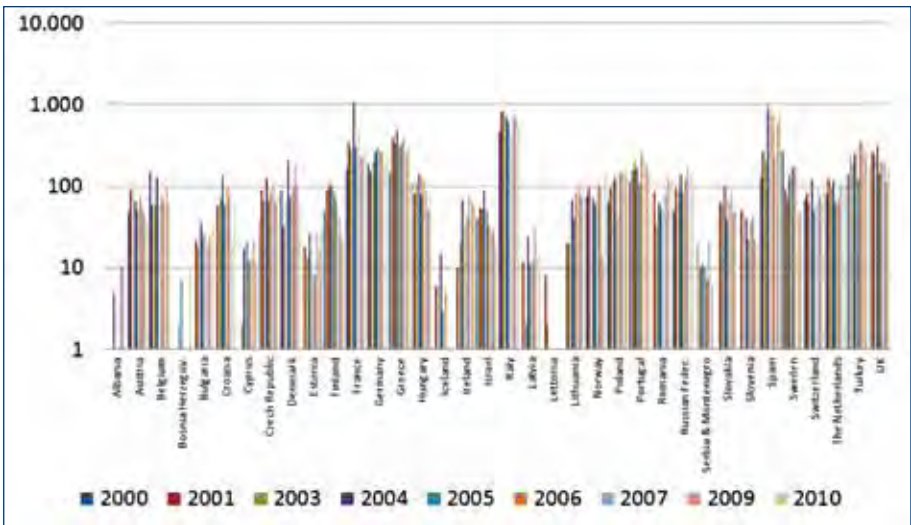


Figure 2. European participants in the ESH Annual Meeting (2000–2010)

running (Annual Summer and Winter Schools, Specialist Programme, Travelling Master Courses, Research fellowships) and outlines ways to strengthen relationships (Forum for National Societies, participation in ESH meetings and activities).

The description below summarizes some of the possibilities that currently exist regarding further strengthening of relationships, and more information can be obtained from the ESH Portal.

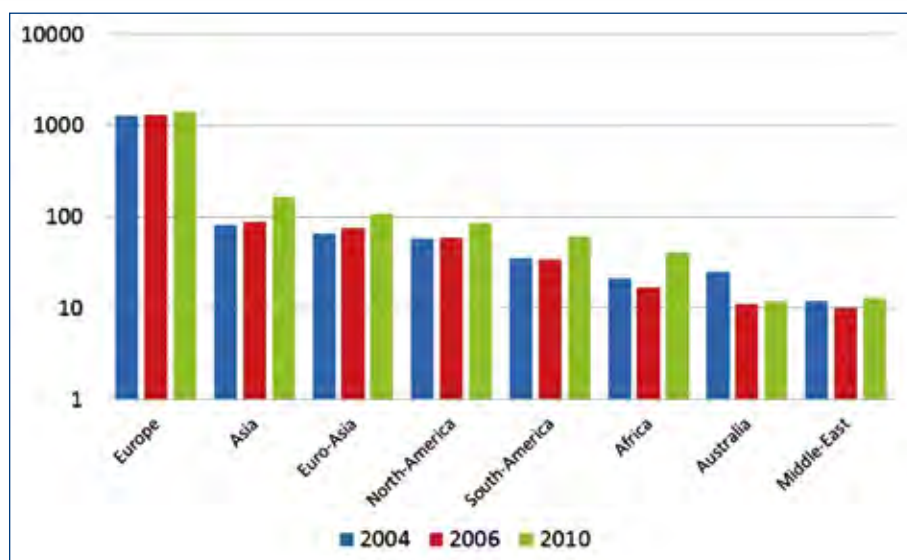


Figure 3. Number and origin of abstracts in the ESH Annual Meetings (2004–2010)

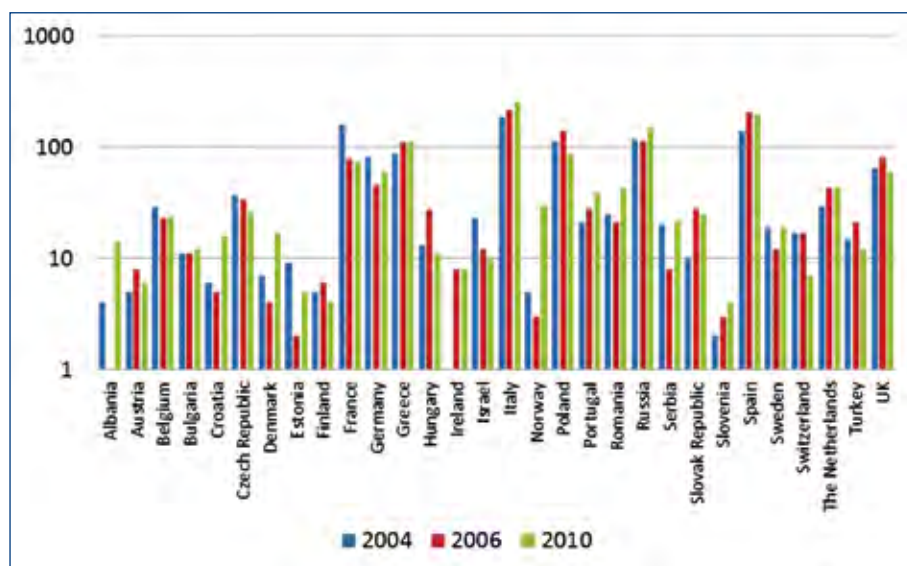


Figure 4. Abstract from European countries in the ESH Annual Meeting (2004–2010)

The Annual ESH Meeting

The presidents of the National Hypertension Societies participate in the ESH Annual Meeting, organised by the ESH Officer at Large, and chaired by the ESH President. One hour is allocated on a mid-day of the annual congress. An agenda

is developed and circulated to contact persons of National Societies four weeks in advance. The nature of this meeting is the exchange of information, but no formal decisions are made. This creates a mutual understanding and a closer commitment to the goals of the ESH.

ESH Summer Schools and Advanced Courses

The National Societies are invited to nominate participants (usually 1–2 per country) and to cover their travel expenses for both events, and accommodation only for participants of the Advanced Courses. Other costs related to organising these educational activities are covered by the ESH. For the first time, the Latin American Societies and the Pan-Arabic Society of Hypertension have been invited to nominate some candidates to attend the 2011 ESH Summer School in Barcelona (Spain).

ESH Specialist Program

ESH specialists (> 900) have been mostly approved following nominations by the National Societies.

ESH Travelling Faculty

Activities are coordinated by the National Societies.

ESH Research Fellowships

2-year awards of up to a maximum 50,000 Euro per annum are offered and can be applied for, with details given on the ESH website.

Strengthening the Relationships

The National Societies have been encouraged to select representatives who will be responsible for contacts with the ESH Scientific Council.

Formalizing the forum for National Societies

The Annual ESH Meeting may be expanded and formalized. Existing National Societies could become members or partners, and the Annual Meeting during the ESH Congress is given the mandate (from the ESH Council) to discuss certain issues and make formal decisions. New National Societies would need approval by this body or by the ESH Council to become new members of this ESH Forum.

Participation in ESH meetings

Over the last few years, and increasingly in the future, active participation of prominent members of the National Societies is encouraged in several ways:

1. During the annual meeting, one or two sessions could be organised by Presidents of the National Societies on themes of special interest to them (e.g., organisation of ESH Hypertension Excellence Centres, health care systems in relation to diagnosis and treatment of hypertension, blood pressure control rates, etc.).
2. Invitation could be given to Presidents of the National Societies to officially act as chairpersons, inviting them to stay in the meeting headquarters, and inviting them to attend Presidential dinner.

Participation in other ESH activities

The ESH regularly invites a number of Presidents or representatives of the National Societies to participate in the yearly Advanced Course of the ESH.

Future steps

A further step is to establish more formal links that can then be reinforced. In this regard a formal programme of AFFILIATION of the National Societies from European countries to the ESH is proposed by the Scientific Council. In parallel, some Hypertension Societies and Organizations from outside Europe have established professional relationships with the ESH asking for advice and help on the development of programmes and teaching activities. A further development will be to establish a formal programme of ASSOCIATION.

AFFILIATION DOCUMENT

Definition of ESH Affiliation

ESH Affiliation is an official recognition to the National Societies of the European Region which would like to be part of and participate in the regular activities of the ESH. It is the purpose of the affiliation to promote the interests of science through definite and formal cooperation with all scientific societies.

Rationale of the ESH Affiliation

- To be officially recognized as part of ESH
- To ensure continuity and unity in the purpose and aims with the ESH
- To have access to the resources, network, and training programmes of ESH
- To facilitate working relationships in the pursuit of the ESH goals
- To define the basic protocols of the affiliates' working relationship with ESH, the latter being the umbrella organization
- To promote mutual encouragement, stimulation, and perspective in research and clinical care of hypertension and hypertension-related vascular risk

Benefits to the National Societies and members

- Annual Meetings of the National Societies which fulfil the criteria of the ESH, even national activities, can be given the endorsement of the ESH.
- National Societies can use the ESH logo in their documents
- Representatives from the affiliated Societies can actively participate in the Annual Meeting of the ESH
- One representative of the affiliated Societies will be selected and incorporate to the Council

Which Societies can apply for ESH Affiliation

- National Hypertension Societies of the European region.
- National Societies of CV risk, which include the word hypertension in its name, of the European region.

ESH Affiliation Requirements

- Letter of Application for ESH Affiliation addressed to the ESH secretary and signed by the current President with the agreement of the National Board.
- Copy of Constitution and By-laws
- List of Officers and Members
- List of Programmes and Activities

Procedures for Affiliation

- Submission of the required documents to the ESH Officer in charge of the process.
- The Officer reviews the completeness of documents and forwards the application to the ESH Council.
- The Board of ESH Council reviews and evaluates the application. The Board may require additional information to the applying party as they deem necessary. If no additional requirements are necessary, the Board will communicate to the National Society the decision that should await confirmation by the General Assembly.
- The preliminary approval by the Board will receive formal approval in the annual General Assembly

Withdrawal

- Affiliation can be withdrawn by the decision of the National Society or the ESH Scientific Council

ASSOCIATION DOCUMENT

Definition of ESH Association

ESH Association is an official recognition given by the ESH to the National Societies from outside Europe, their Federations or Alliances or other International Organizations devoted to hypertension-related vascular risk which would like to participate in the regular activities of the ESH.

Rationale of the ESH Association

- To be officially recognized as associated to ESH
- To ensure continuity and unity in the purpose and aims with the ESH
- To facilitate working relationships in the pursuit of the ESH goals
- To promote mutual encouragement, stimulation, and perspective in research, clinical care and education on hypertension and hypertension-related vascular risk

Benefits to the Societies and Members

- Annual Meetings of the National Societies which fulfil the criteria of the ESH, even for national and regional activities, can be given the endorsement of the ESH
- National Societies can use the ESH logo with the inscription of “associated to ESH” in their documents

- Members of the Organizations can be involved in the Official activities, Programmes (Specialists, Network of Excellence) and Meetings of the ESH
- Master Courses for teaching and training people can be developed

Which Societies can apply for ESH Association

- National Hypertension Societies from outside Europe registered in their own country.
- National Vascular Risk Societies, which included the word hypertension in their names, from outside Europe registered in their own countries.
- Federations or Alliances of National Hypertension Societies or National Vascular Risk Societies, or other recognized International Organizations devoted to hypertension-related vascular risk from outside Europe.

ESH Association Requirements

- Letter of Application for ESH Association addressed to the ESH Secretary and signed by the current President with the agreement of the National Board.
- Copy of Constitution and By-laws
- List of Officers and Members
- List of Programmes and Activities

Procedures for ESH Association

- Submission of the required documents to the ESH Officer in charge of the process.
- The Officer reviews the completeness of documents and forwards the application to the ESH Council.
- The Scientific Council of the ESH reviews and evaluates the application. The Board may require additional information to the applying party as they deem necessary. If no additional requirements are necessary, the Scientific Council communicates to the National Society from outside Europe, Federation, Alliance or recognized International Organization the decision that should await confirmation in the General Assembly.
- The preliminary approval by the Scientific Council will receive formal approval in the annual General Assembly

Withdrawal

- Association can be withdrawn by a decision from any of the counterparts

Summary

The activities of the National Societies of hypertension are of the greatest interest to the ESH. As the map of Europe has changed considerably during the last 30 years, new possibilities have developed for better contacts with a growing number of new Societies, especially in Eastern Europe and the Balkans. The new strategy from the ESH is to offer association status for European Societies of hypertension and affiliation status from non-European Societies. This will strengthen the ties between the ESH and the National Societies in different countries.

ESH Research Grants

The European Society of Research Grant Programme has been supported since 2007. The overall aim of these competitively awarded fellowships is to fund research and training in hypertension-related fields. The prospective fellows should hold a medical degree or higher degree in science and have a significant research aptitude and/or clinical experience in hypertension.

The award can be used to support a two-year period of research at an institute, university or academic centre in Europe. While the supervisor supporting the Fellow should be a member of the ESH, the Fellow may not. The award will be up to a maximum of 50,000 Euro per annum and it is intended to fund maximally two Fellowships per year.

The cycle of awards is:

- closing date for applications February 28th;
- review process February to April;
- outcome to be announced at the annual meeting of the ESH;
- candidates to take up posts in September.

The applications can be downloaded from the ESH website and the process is being completed entirely via email.

Awardees

2007

Dr Dagmara Hering, Gdansk

2008

Dr Thomas Shestedt, Copenhagen

Dr Marcus Schneider, Erlangen

Dr Jose Garcia-Donaire, Madrid

2009

Dr Quig Wang, Lausanne

2010

Dr Fernando Martinez Garcia, Valencia

Dr Celine Fernandez, Lund

2011

Dr Pedro San-Crostobal, Nijmegen

InGenious HyperCare and other ESH-endorsed research projects

InGenious HyperCare

Project title: Integrated Genomics, Clinical Research and Care in Hypertension

Instrument: EU NETWORK OF EXCELLENCE

Thematic Priority: Life sciences, genomics and biotechnology for health

Project objectives

A better prevention of hypertension and hypertension-related cardiovascular events is an essential public health goal in Europe, where cardiovascular diseases are the major cause of mortality and morbidity. Despite the widely-shared opinion that hypertension has an important hereditary component, genetic and genomic research has not yet been fully exploited by medical research on hypertension, which has limited progress toward primary prevention of hypertension, and prevention of the cardiac, vascular and renal consequences of hypertension.

The problem has been approached by integrating complementary but still fragmented experiences in the mechanisms of blood pressure control and hypertension development, in phenotyping initiation and progression of organ damage and in exploring genetics, genomics and the proteomics of proneness to hypertension and hypertension-related cardiovascular disease.

Centres involved

- Istituto Auxologico Italiano, Milano, Italy (Alberto Zanchetti)
- Università degli Studi di Milano-Bicocca (UniMIB), Milano, Italy (Giuseppe Mancia)
- Università degli Studi di Milano (UMIL), Milano, Italy (Daniele Cusi)
- Università degli Studi di Brescia (UNIBS), Brescia, Italy (Enrico Agabiti-Rosei)
- Università degli Studi di Roma “La Sapienza” (RM2), Roma, Italy (Massimo Volpe)
- Università degli Studi di Padova (UPAD), Padova, Italy (Edoardo Casiglia)
- Università Vita-Salute San Raffaele (UHRS), Milano, Italy (Giuseppe Bianchi)
- Institut National de la Santé et de la Recherche Médicale (INSERM), Paris, France (Stéphane Laurent)

- Centre Hospitalier Universitaire de Nancy (CHU Nancy), Nancy, France, (Faiez Zannad)
- University of Glasgow (UGLA), Glasgow, United Kingdom (Anna Dominiczak)
- University of Manchester (UNIMAN), Manchester, United Kingdom (Tony Heagerty)
- University of Leicester (ULEICS), Leicester, United Kingdom (Bryan Williams)
- Katholieke Universiteit Leuven (K.U.Leuven), Leuven, Belgium (Jan Staessen)
- Universiteit Maastricht (CARIM UM), Maastricht, The Netherlands (Heindrik Strijker Boudier)
- Charité-Universitätsmedizin Berlin (Charité), Berlin, Germany (Thomas Unger)
- Medizinische Hochschule Hannover (MHH), Hannover, Germany (Hermann Haller)
- Westfälische Wilhelms Universität (WWU), Muenster, Germany (Eva Brand)
- Fundación de Investigación del Hospital Clínico Universitario of Valencia (FIHCUV), Valencia, Spain (Josep Redon)
- Fundación para la Investigación Médica Aplicada (FIMA), Pamplona, Spain (Javier Diez)
- Fundación para la Investigación Biomédica del Hospital Universitario “Doce de Octubre” (Unidad HTA), Madrid, Spain (Luis M. Ruilope)
- Hospital Clinic y Provincial de Barcelona (HCPB), Barcelona, Spain (Antonio Coca)
- Lunds Universitet (ULUND), Lund, Sweden (Olle Melander)
- Helsingin yliopisto (UH.DPH), Helsinki, Finland (Jaakko Tuomilehto)
- Medical University of Gdansk (MUG), Gdansk, Poland (Krzysztof Narkiewicz)
- Jagiellonian University Medical College (JUMC), Krakow, Poland (Kalina Kawecka-Jaszcz)
- Institute for Clinical and Experimental Medicine (IKEM), Prague, Czech Republic (Renata Cífková)
- Charles University in Prague (CU), Pilsen, Czech Republic (Jan Filipovsky)
- Mosaiques diagnostics GmbH (Mosaiques), Hannover, Germany (Harald Mischak)
- Hospices Cantonaux (HC/CHUV), Lausanne, Switzerland (Michel Burnier)
- Institute of Internal Medicine Siberian Branch of Russia Academy of Medical Sciences (IIM SB RAMS), Novosibirsk, Russian Federation (Yuri Nikitin)
- Shanghai Institute of Hypertension (Shanghai IH), Shanghai, China (Wang Jiguang)
- CF consulting Finanziamenti Unione Europea s.r.l (CFc), Milano, Italy (Carla Finocchiaro)
- Thomayer University Hospital (FTN), Prague, Czech Republic (Renata Cífková)

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Work performed

The main focus of the Network project was to integrate the research activities of the different partners of the Network, and provide them with the integrated research platforms for phenotyping and genotyping patients according to common standards of excellence, in order to facilitate a number of common research projects and coordinate the investigations of individual units within an integrated frame of research.

A powerful instrument of integration has been the Programme of Joint Research Activities. A first group of three research packages has addressed the Mechanomics of Hypertension, i.e. identifying genetic, genomic and proteomic markers of disturbances in the major mechanisms controlling blood pressure (A1: autonomic control; A2: inflammation and oxidative stress, A3: renal sodium handling), as indicators of becoming a hypertensive risk, and of yet unknown pathways facilitating the development of hypertension. The second group of three research packages addressed Mechanomics of Hypertension-Related Diseases, i.e. identifying the genetic, genomic and proteomic markers of the risk of developing a hypertension-related event (B1: stroke; B2: renal dysfunction; B3: heart failure), as well as the unknown mechanisms mediating the transition from a risk factor to disease. Spreading such excellence beyond the Network has been done with the support of the European Society of Hypertension.

Furthermore, in order to facilitate this integration, to enhance scientific productivity, and to create durable instruments of collaboration extending beyond the terms of the EC contract, collaborative research platforms have been established for phenotyping and genotyping, plus proteomic and animal research. Finally, an indispensable instrument of integration has been the early establishment of a Network web site with a public part (information on partners, public presentations by partners) and a confidential one, accessible by personalized passwords, with protocols and electronic Case Report Files.

Results achieved

The intense work of integration performed during the four years of the project has borne important research results:

1. As far as **Genotyping** is concerned, an important genome-wide association study, comparing 1.600 marked hypertensive with 1.700 fully normotensive subjects, completed replication of a significant finding in chromosome 16 using a further cohort of more than 36.000 subjects; other populations or cohorts (PAMELA, EPOGH, VALENCIA) have been genotyped and infrastructures for genotyping two extensive family-based cohorts (of a hypertensive index patient and, respectively, of an "early" stroke proband) have been established;

- additional genotyping studies have been completed exploring the role of specific polymorphisms on cardiovascular structure, cardiovascular disease, stroke, renal function and sodium homeostasis;
2. **Proteomic methodologies** for searching markers of organ damage in the urine of hypertensive patients have been developed and tested, and have been employed in coronary artery disease, diabetes and chronic kidney disease; biomarkers of cardiac damage in the plasma of hypertensive patients have also been investigated with an emerging role for cardiotrophin-1;
 3. **Standardized phenotypes** of cardiovascular and renal damage have been employed in the various cohorts of patients and their families recruited in the context of JRPs A2-B2-B3, B1 and A3, through the use of electronic CRFs in the Network website, and detailed analyses of some of these phenotypes have been initiated; further intensive investigation is being carried out to characterize the cardiac, vascular and renal changes caused by hypertension;
 4. **Animal research** on models of cardiac and brain damage associated with hypertension has further progressed;
 5. **Spreading** of the Network activities and results has been achieved thanks to close collaboration with the European Society of Hypertension.

Expected end results

1. Identification of genome regions with SNPs associated with hypertension, and of their functional significance, also through collaboration with other groups (meta-analysis of genome-wide association studies in hypertension).
2. Identification of polymorphisms in the most important genes belonging to definite pathways (autonomic genes, genes within the inflammatory and oxidative stress pathways, genes interfering with renal sodium handling, renal susceptibility genes, cardiac genes, etc.) associated with the pathophysiological changes accompanying the development of hypertension and hypertension-related damage.
3. Identification of protein biomarkers of early cardiac and renal damage.
4. Creation of very large databases of hypertensive phenotypes and genotypes.
5. Creation of a lasting network, where genotyping and phenotyping are pursued in close associations by groups using common genetic platforms and common methods of phenotyping.
6. Spreading of excellence beyond the Network to the European and international community of investigators in the area of hypertension and cardiovascular diseases.

Intention for use and impact

1. Identification of genomic sites strongly associated with hypertension will help in identifying potential physiological and pathological mechanisms related to development of hypertension and its complications.

2. A better identification of normotensive subjects genetically prone to developing hypertension and of hypertensive patients at a greater genetic risk of developing a cardiovascular complication (and, potentially, a specific type of complication) may make treatment of hypertension, a widespread condition, more cost-effective, and may lead to the development of new therapeutic approaches.
3. Identification of protein biomarkers of early cardiac, vascular and renal damage is expected to provide new diagnostic and therapeutic tools.

Main elements of the publishable results of the plan for using and disseminating the knowledge

During the four years of activity of the Network, 182 articles have appeared in peer-reviewed journals (total impact factor 1048.689) acknowledging InGenious HyperCare support. Further dissemination of knowledge has been achieved by presenting the Network's objectives and plans of investigations at several scientific meetings, such as the annual meetings of the European Society of Hypertension, and by teaching methodologies to be used or developed by the Network at the Summer Schools and the Winter Schools of the European Society of Hypertension.

HIGHCARE (HIGH altitude Cardiovascular REsearch) PROJECT

HIGHCARE

STUDY AIMS:

- A) to investigate the cardiovascular, respiratory, neural, endocrine, metabolic, hematologic and molecular effects of hypobaric hypoxia at extreme altitudes at various stages of adaptation in an integrated manner based on a multidisciplinary approach;
- B) to study the effect of angiotensin II receptor blockade (by telmisartan) on the cardiovascular, respiratory, neural and metabolic responses to high altitude hypobaric hypoxia;
- C) to evaluate the acute physiological effects of non-pharmacological interventions potentially useful for the treatment not only of acute mountain sickness but also of chronic clinical conditions with hypoxemia, including continuous positive airway pressure (CPAP) and controlled slow breathing (SlowB);
- D) to explore the relationship between changes in biological parameters and changes in meteorological parameters such as temperature, humidity and UV radiation exposure. Aims of this sub-project will also be to monitor/forecast weather and micro-climatic variables near the ground at different altitude, and to predict the physical/physiological performance in those environments by the assessments of thermal balances during different physical activities.

PRINCIPAL INVESTIGATOR:

Gianfranco Parati, University of Milano-Bicocca & Istituto Auxologico Italiano, Milano

PARTICIPATING PROJECT SCIENTISTS

Piergiuseppe Agostoni, Grzegorz Bilo, Giovanna Branzi, Gianluca Caldara, Paolo Castiglioni, Marco Di Rienzo, Andrea Faini, Carolina Lombardi, Fulvio Magni, Gabriella Malfatto, Giuseppe Mancia, Paolo Mazzoleni, Pietro Amedeo Modesti, Marco Morabito, Gianfranco Parati, Alberto Piperno, Barbara Poletti, Miriam Revera, Paolo Salvi, Athanase Benetos, Giulio Savia (†), Katarzyna Styczkiewicz, Kalina Kawecka-Jaszcz, Thomas Unger, Elena Kashina, Mariaconsuelo Valentini, Alberto Zanchetti

STUDY PROTOCOL

Introduction

Having accumulated four years' experience in high-altitude research at Monte Rosa (Capanna Regina Margherita, 4.559m above sea level), Istituto Auxologico Italiano (Ospedale S.Luca, Milano, Osp. S. Giuseppe, Piancavallo, Verbania) and University of Milano-Bicocca (Dept. of Clinical Medicine and Prevention) organized an expedition aimed at assessing the physiological changes induced by the exposure to more marked and more prolonged hypobaric hypoxia and to determine how these changes may be influenced by angiotensin AT1 receptor blockade and by other non-pharmacological interventions.

A number of other institutions were invited to participate in the project, either directly or through their cultural support and contribution. The expedition took place in the Himalayas, on the Nepal side of Mount Everest (Khumbu Valley). Data were collected in Namche Bazaar (3.400m above sea level) and at Mt. Everest Base Camp (5.400m above sea level). A subgroup of climbers attempted the ascent



Photo 69 . HIGHCARE Scientific Laboratories at Mt. Everest Base Camp, 5.400m above sea level



Photo 70. HIGHCARE Scientific laboratories (blue and orange tents) and sleeping tents (yellow tents) at Mt. Everest base camp, 5.400m altitude

to Mt. Everest summit and collected scientific data up to the altitude of 6.800m above sea level.

Rationale and aims of HIGHCARE

Most of the physiological changes occurring at high altitude are due to decreased atmospheric pressure leading to hypoxia and hypoxemia. The study of the biological effects of high-altitude exposure allows a better understanding of the mechanisms of adaptation to high altitude and of acute mountain sickness (AMS). This condition may also serve as a model to explore the pathophysiology of diseases associated with tissue hypoxia and to assess the effects of therapeutic interventions used in these conditions. Given the very complex character of environmental conditions and physiological responses at high altitude a multidisciplinary approach is necessary to provide an adequate description of the phenomena observed in this setting.

The renin-angiotensin-aldosterone system (RAAS) is involved in the pathogenesis of a number of cardiovascular pathological conditions, including hypertension and heart failure, and drugs interfering with RAAS, including AT1 angiotensin receptor blockers, are beneficial in these conditions.

High altitude has been suspected of inducing important changes in RAAS, although the exact character of these changes is poorly understood. Moreover, so far no information on the effects of AT1 inhibition in this setting is available.

Telmisartan is one of the AT1 antagonists, characterized by a prolonged effect which allows 24h coverage with a single daily dose. It has also been thought to exert metabolic effects through PPAR-gamma agonism. This feature may be relevant at high altitude since insulin sensitivity has been suggested to be reduced in this condition.

Based on our previous research in the Alps, two non-pharmacologic interventions aimed at counteracting high altitude hypoxia have been shown to have immediate efficacy in terms of improvement in oxygen exchange: controlled slow breathing and



Photo 71. Official poster of the HIGHCARE project

continuous positive airway pressure (CPAP) application. However, the mechanisms underlying this improvement are still not adequately understood.

Other physiological changes at high altitude that deserve to be explored, because of their general biological relevance, include changes in alveolar gas diffusion, occurrence of periodic breathing during sleep, changes in circulating hormones, the role of oxidative stress, changes in arterial stiffness and ambulatory blood pressure values, changes in autonomic cardiovascular modulation, the increased production of red blood cells and their related mechanisms (including the role of hepcidin), the production of hypoxia-related proteins, metabolic alterations, and changes in psychological reactivity, all associated with hypoxic stimulus.

Finally, climatic features of high altitude have to be considered for the interpretation of biological information. These features include the decrease in temperature, atmospheric pressure, air density, water vapour, carbon dioxide, and impurities, and an elevated and variable exposure to ultraviolet radiation. Mountains are also among the windiest places on earth. Micro-climate conditions are another relevant factor — great environmental contrasts occur within short distances and short time-spans as a result of the diverse topography and the highly variable nature of energy and moisture fluctuations within the system. Such extreme meteorological conditions, combined with an important intra-daily and day-to-day weather variability, may strongly influence psychophysical and physiological performances with serious health impacts on trekkers and alpinists.

METHODS

Study tests

Cardiovascular aspects:

1. 24 h ambulatory BP monitoring (ABPM)
2. Beat by beat non-invasive continuous blood pressure (BP) and pulse interval (PI) monitoring
3. Echo-cardiography



Photo 72. Assessment of cardiovascular function

4. Arterial stiffness assessment through pulse wave velocity quantification and pulse wave analysis

Biochemistry, endocrine and metabolic aspects

Neural aspects

Sleep studies: wearable monitor, Embletta cardiorespiratory monitor.

Neuroreactivity tests

- A) Neuropsychological assesment
- B) Psychological assessment

Haematologic aspects: erythropoiesis and blood coagulation

Molecular and genetic aspects:

Blood samples to be frozen and stored in high-tech specially devised containers filled with liquid nitrogen.

Interventions aimed at acute improvement in AMS

CPAP application

Slow breathing Exercise

Other measurements:

1. Symptoms assessment (Lake Louise Score)
2. Body temperature
3. SpO₂ (pulse oxymetry)
4. Blood gas analysis
5. Conventional BP and heart rate (comparison of mercury, aneroid and electronic oscillometric devices)
6. Fluid balance (body weight, bio-impedance, thoracic impedance)
7. Basal respiratory function by spirometry and DLCO



Photo 73. Collection of biochemistry, endocrine and metabolic data. Polysomnographic recordings

HIGHCARE — STUDY DESIGN

HIGHCARE study was a randomized, parallel group, double blind, randomized, placebo controlled trial with telmisartan in the initial dose of 40 mg, increased after one week to 80 mg in a single morning dose.

Male and female volunteers in good general health residing at low altitudes aged 20 to 65 years who gave informed consent to study procedures were included. Exclusion criteria were: known cardiovascular disease, any chronic cardiovascular therapy, repeated exposures to altitudes > 3000m above sea level in the 8 months preceding the expedition (except for the summit climbing group), history of severe mountain sickness, and contraindications to telmisartan. The study protocol was approved by the Ethics Committee of Istituto Auxologico Italiano and the study was conducted in agreement with the Helsinki Declaration.

After 8 weeks of double blind treatment the participants travelled from sea level (Milan, 140m) to Kathmandu (Nepal, 1.355m) where they stayed for three days. Then they were brought within several hours to Namche Bazaar (3.400m) where they stayed for another three days. From Namche Bazaar they trekked over 5 days to Mt. Everest Base Camp (5.400m) where they remained for 12 days. Afterwards they returned to sea level (Milan) over the next 6 days. Study drugs were taken throughout the expedition until the last tests were completed after return to sea level.

Study tests were performed at six time points: at sea level baseline pre-treatment (SLpre); at sea level baseline post-treatment (SLpost); during acute (day 1–3) exposure to high (3.400m) altitude at Namche Bazaar (Namche); during acute (day 1–3) exposure to very high (5.400m) altitude at Mt. Everest Base Camp (BC1); during



Photo 74. Biometeorology at high altitude

prolonged (day 9–11) exposure to very high (5.400m) altitude at Mt. Everest Base Camp (BC2); and immediately after return to sea level (SLreturn)

KEY FINDINGS

Notwithstanding numerous difficulties all subjects safely completed the study and the vast majority of scheduled data were successfully collected and subsequently analysed. Overall, 49 subjects participated in the study: 33 males and 16 females, mean age was 38.5 years, mean BMI 22.8 kg/m².

1. **Blood pressure.** The ambulatory blood pressure (ABPM) study was one of the first such studies in this setting, following our previous observations on the Alps [1] and the very first to investigate the effects of treatment with angiotensin antagonists (telmisartan) at high altitude. This study has shown that [2, 3] in conditions of hypobaric hypoxia (oxygen deficiency), 24-hour blood pressure increased in a sustained manner proportional to the altitude reached and that treatment with telmisartan reduced blood pressure compared with placebo at high altitude, up to at least 3,500m above sea level. A comparison of oscillometric and aneroid devices vs. the mercury column standard demonstrated that the accuracy of the oscillometric BP monitor was acceptable while the aneroid device tended to underestimate BP at very high altitude [4].
2. **Echocardiography.** Echocardiographic data were used to monitor the efficacy of non-pharmacological interventions (mainly pulmonary artery pressure); additionally, the analysis of 2D strain data revealed differences in left ventricular rotation/torsion patterns between sea level and high altitude.
3. **Arterial stiffness.** Significant increase in carotid-femoral pulse wave velocity at high altitude compared with sea level was identified, independent of the changes in mean BP and in heart rate [5, 6].
4. **Sleep studies.** The analysis of sleep registrations revealed the appearance of central apnoeas and periodic breathing at high altitude, more severe at 5.400m than at 3.400m. There were significant differences in the number of central apnoeas between genders, this number being higher in male than in female subjects. Under prolonged exposure to 5.400m climbers displayed a better cardiorespiratory performance than non-climbers, suggesting that training facilitates cardiac and respiratory adaptations to high-altitude hypoxia [7].
5. **Neuroreactivity tests.** While classic paper and pencil tests did not detect major changes with altitude, better cognitive performances scores were obtained in normoxia and at 3.500m than at 5.400m for computerized psycho-motor (keyboard reaction times, KRT) and eye reaction times (ERT). ERT were positively related to respiratory rate (RR). Gender differences were detected, with women having a better performance than men on psychomotor efficiency at 5400m [8].
6. **Haematologic aspects.** EPO and GDF15 significantly increased within 24 hours after acute exposure to 3.400m altitude, reached maximal increase at

- 5.400m and then decreased to normal values at return to sea level. Hepcidin decreased within 48 hours after acute hypoxia exposure and reached the lowest level at Base Camp (5.400m). These modifications induced a marked erythropoietic response (HT and sTFR increase at Base Camp) supported by increased iron absorption and release from stores, induced by hepcidin production downregulation [9].
7. **Genetic aspects.** Mean 24 h, daytime and night-time BP values at BC were compared between the carriers of II, ID or DD genotype of ACE gene. Subjects with DD ACE genotype were characterized by a more pronounced pressor response to high altitude compared with those with ID or II genotype despite lack of differences in angiotensin II concentrations [10].
 8. **Proteomics.** Changes in protein synthesis pattern were found between sea level and high altitude. The exact nature of these changes is currently being investigated [11].
 9. **CPAP.** We found no benefit of acute CPAP application during prolonged exposure to high altitude, as compared to significant effects seen during acute exposure (previous data of our group obtained during Monte Rosa expedition) [12, 13].
 10. **Slow breathing.** A significant increase in SpO₂ occurred after 15 minutes of breathing at 6/min rate at 5.400m.
 11. **Renal function and fluid homeostasis.** We assessed serum creatinine, osmolality, angiotensin II, aldosterone, plasma renin, ADH, ANF and noradrenalin and urinary osmolality. Our results have shown a complex interplay of humoral factors involved in fluid homeostasis and BP regulation under prolonged hypoxia. [14].
 12. **Blood coagulation.** Oxygen saturation, hematocrit, expedition day and maximum velocity of clot formation at an intermediate altitude assay were independent predictors of mountain sickness symptoms quantified by the Lake Louise Score. Thus the inclusion of a coagulation parameter in a score index assessed at an intermediate step on the way to the top may provide information on impending AMS [10, 16].
 13. **Computer analysis of blood pressure and heart rate variability & innovative technologies at high altitude.** Computer analysis of cardiovascular variability during wakefulness and sleep has offered deeper insights into cardiovascular regulation in these conditions. A new textile-based wearable system for the unobtrusive recording of cardiorespiratory and motion signals during spontaneous behaviour was tested during the expedition. Data derived from recordings performed on patients in bed and during physical exercise showed good signal quality over most of the monitoring periods, and a correct estimation of the average beat-by-beat heart rate [17–20].
 14. **Alveolar gas diffusion.** In spite of logistical and organizational difficulties [21], assessment of alveolar gas diffusion early and after prolonged exposure to high altitude hypoxia in the HIGHCARE expedition has allowed a better understanding of respiratory physiology at altitude [22, 23].



Photo 75. The HIGHCARE Project was presented in the form of a photographic exhibit at the ESH Congress 2009 in Milan



Photo 76. HIGHCARE data were first presented in a Satellite Symposium to the 2009 ESH Congress in Milan, with participation of leading world experts in the field of high-altitude research

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ARTEMIS Registry

PROTOCOL SYNOPSIS

Project title:

INTERNATIONAL AMBULATORY BLOOD PRESSURE REGISTRY:
TELEMONITORING OF HYPERTENSION AND CARDIOVASCULAR RISK
PROJECT

Project name ARTEMIS

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Scientific Secretary

Dr. Grzegorz Bilo (Italy)

Technical Sponsor

Microlife AG, Switzerland

Start of the project: November 2010

Objectives

Objectives of the project are:

1. To create a worldwide network of centers performing ambulatory blood pressure monitoring (ABPM) recordings (including specialized Hypertension Centers and General Practitioners);
2. To collect a large registry of subjects from different countries in whom basic clinical information is available as well as at least one ABPM fulfilling the predefined criteria (see below);
3. To design and conduct a series of research studies focusing on ABPM and based on this collected data set;
4. To promote the application of ABPM in clinical practice and to disseminate knowledge on its correct use and interpretation;
5. To actively collaborate with international scientific societies in their activities related to ABPM, in particular in the preparation of recommendations for ABPM use in clinical and research setting.

Methodology: International, multi-center, observational project

Population: The registry will include:

1. Prevalent Data: subjects fulfilling the inclusion criteria whose data are contained in existing databases collected by the participating centers;
2. Incident Data: starting from year 2011, the participating centers will include in the database consecutive subjects undergoing ABPM. The minimum required average recruitment rate will be 100 subjects per Hypertension center and 30 subjects per year for a General Practitioner.

While the present document contains the initial list of participating countries and centers, other centers willing to participate in the project and able to provide a significant contribution may be also accepted after the project has been initiated.

Inclusion criteria. Male and female subjects

Age > 18 years

ABPM performed for clinical reasons or within another research project.

- A) ABPM performed with a validated device, fulfilling the following validity criteria in the prevalent database:
 - Interval between measurements not exceeding 30 minutes
 - At least 70% of expected number of readings being obtained
 - At least 40 readings obtained over 24 hours
- B) ABPM performed with a validated device, fulfilling the following validity criteria in the incident database:
 - Interval between measurements not exceeding 20 minutes during daytime (3 readings per hour) and 30 minutes during night-time (2 readings per hour); in case of Microlife WatchBP 03 devices provided to the investigators this interval should be of 15 minutes throughout 24 hours
 - recording duration of at least 24 hours
 - at least 70% of expected number of readings being obtained
 - not more than two hours in the recording without valid readings
 - no consecutive hours without valid readings
 - availability of raw ABPM data (individual measurements) as data files (excluding image files, pdf reports etc.)
- C) Availability of basic clinical information:
Age, sex, BMI, smoking status, dyslipidemia (yes/no), diabetes (yes/no), diagnosis of hypertension (yes/no), current antihypertensive treatment status (at least treated/untreated), clinic blood pressure obtained in the same treatment condition as ABPM
- D) Availability of a signed informed consent form

Exclusion criteria:

Atrial fibrillation, frequent ectopic beats, second or third degree atrioventricular blocks, or other conditions which might make difficult or unreliable the automatic blood pressure measurement with the oscillometric technique

Upper arm circumference < 22 cm

Pregnancy

Data collection

- A) Prevalent Data Registry: existing electronic databases of subjects fulfilling the inclusion criteria will be directly transferred to project Data Management with a clear description of variables. These data will be transformed as needed and included in the main project database

- B) Incident Data Registry: every subject will be submitted to a 24h ambulatory blood pressure recording using validated devices and in accordance with the procedures described in the Appendix I. Hypertension Clinics will make use of the validated devices already available in their unit while General Practitioners will be provided with a Microlife WatchBP 03 device in all countries where an agreement is reached
- C) Data collection will be ensured by a dedicated web-based multilingual telemedicine system (in all countries except Spain where another web-based system is already in use for the ongoing project). When using the Microlife device, a web-based software will be used to program the device and to download data at the end of the recording. Data will be transmitted to the project website and analyzed in real-time with production of an electronic report sent by e-mail to the Investigator and available on the website. Ambulatory blood pressure data collected with validated blood pressure monitors other than the WatchBP 03 may be included in the system by uploading the file directly on the website.

The web-based telemedicine system will also include a dedicated e-CRF, allowing collection of patient's clinical data, such as family history, anthropometric data, habits, past and current diseases, therapies, office BP, and possibly laboratory tests, including evaluation of target organ damage. The e-CRF will allow also uploading attachments with raw ultrasound data (report of cardiac and carotid examinations) and digital ECG. The same system will estimate the patient's cardiovascular risk level according to ESC-ESH risk table.

More than one ABPM recording may be performed on the same patient if deemed necessary by the physician in charge. They will be uploaded into the telemedicine system and complemented by an update of clinical information, in particular with regard to office blood pressure and treatment. The project, at this stage, does not involve any type of intervention and the physicians will manage the patients included in the registry according to the requirements of clinical practice. They will also be free to use the ambulatory blood pressure data in the clinical management of the patients.

The telemedicine system will allow a) standardized and centralized data collection, b) data validation, c) setup of a network between experts (Specialists) and General Practitioners aiming at supporting doctors' interpretation of ambulatory tracings and consequent medical decision.

ABPM data analysis

Standard variables derived from raw ABPM data will be calculated immediately once the data are put into the database and their adequate quality is verified. These will include hourly means, 24h, daytime and nighttime averages and standard deviations.

Other variables of interest will be defined in the framework of studies based on the ARTEMIS registry and calculated subsequently according to the procedures defined separately in each study protocol.

Dissemination activities

Dissemination activities of the project will be aimed at achieving a possibly standardized and widespread ABPM use in clinical practice. They will involve:

1. The exchange of knowledge between participating centers already expert in ABPM use
2. Performance of studies aimed at optimizing ABPM methodology
3. Providing instructions on appropriate ABPM methodology to General Practitioners and other participants of the project with limited ABPM expertise
4. Cooperation with international and national scientific societies (in particular with European Society of Hypertension) in the area related to ABPM use

Data access and publication policy

At each point of the project each member of the Scientific Committee can propose the performance of a study based on the data contained in the ARTEMIS registry.

The draft of the study protocol will be discussed among the Scientific Committee members and undergo the final approval by the Scientific Coordinator and the Steering Committee. The author of the proposal will coordinate the study and will have full access to the subset of data pertinent to the study. Data analysis for each study may be performed centrally or locally by the proponent if analyses requiring particular expertise are needed.

TOPIC and HyperGIROD

Target Organ Damage in a Prospective Intervention Cohort (TOPIC)

Importance of Genes and Interactions of Risk Factors for Target Organ Damage and Prognosis in Hypertension (HyperGIROD)

Summary

1. **Problem:** Cardiovascular risk prediction in individuals is presently inadequate, because we do not have risk markers suitable for individual use as we do not completely understand the complex mechanisms underlying the development of cardiovascular disease (CVD), thereby making early prevention and individualized treatment difficult.

Main hypothesis: In “Target Organ Damage in a Prospective Intervention Cohort” (TOPIC) we hypothesised A) that reduction in 24-hour ambulatory blood pressure will correlate differently to changes in different markers of target organ damage (TOD) during the first year of anti-hypertensive treatment, and B) that a combination of two-three different markers of target organ damage (TOD) at baseline and/or with or without changes during the first year of treatment will improve the prediction of future cardiovascular events in patients with hypertension beyond that allowed by focusing only on traditional risk factors, including 24-hour ambulatory blood pressure measurements. In “Importance of Genes and Interactions of Risk Factors for Target Organ Damage and Prognosis in Hypertension” (HyperGIROD) we hypothesised A) that identification of new risk factors, risk factor interactions and/or genetic variations (individual susceptibility)

- will improve prediction of TOD and changes in TOD, and B) further improve prediction of future cardiovascular events (project part B) in patients with hypertension beyond that allowed by focusing only on traditional risk factors including 24-hour ambulatory blood pressure measurements.
2. **Organization:** TOPIC Study and the biobank substudy HyperGIROD are both initiated by the European Society of Hypertension (ESH) and will be lead by the ESH council together with the active participation of the ESH Centers of Excellence. The goal is to include 4.000 patients in TOPIC and 3.000 in HyperGIROD. The patients should be aged 18–80 years with office systolic blood pressure ≥ 140 mmHg or office diastolic blood ≥ 90 mmHg, with or without ongoing anti-hypertensive treatment, newly referred (< 6 months) by their local doctor for evaluation and treatment of hypertension. The patients should be enrolled consecutively in 40–80 ESH Excellence Centers throughout Europe. They will be thoroughly investigated at inclusion, after one year and two years of anti-hypertensive treatment following ESH guidelines and then followed-up for cardiovascular events for five years.
 3. **Steering Committee:** Professors Michael H. Olsen from Odense University Hospital, Denmark, who initially suggested the project to the European Society of Hypertension (ESH) and will be responsible for risk markers and risk stratification, Serap Erdine from Istanbul, Turkey, who has developed the web-program, Margus Viigimaa from Tallinn, Estonia, who has organized the ESH Centres of Excellence, Krzysztof Narkiewicz from Gdansk, Poland, who is the immediate past president of ESH, Josep Redon from Valencia, Spain, who will be the current president of ESH and will be responsible for assessment of albuminuria, Peter Nilsson, Malmö, Sweden, who is the secretary of the ESH and will be responsible for diabetes, Stéphane Laurent from Paris, France, who will be responsible for assessment of large artery damage, Enrico Agabiti-Rosei from Brescia, Italy, who will be responsible for assessment of cardiac and carotid damage, and Anna Dominiczak from Glasgow, UK, who will be responsible for assessment of genomics and proteomics.
 4. **Scientific Committee:** Consists of the Steering Committee together with the following professors with extensive research experience within different areas relevant to the registry: Giuseppe Mancina and Gianfranco Parati from Milan, Italy (ambulatory and home blood pressure), Renata Cifkova from Prague, Czech Republic (prevention), Roland E. Schmieder from Erlangen, Germany (small retinal artery damage), Sverre E. Kjeldsen from Oslo, Norway (intervention), Ettore Ambrosioni from Bologna, Italy (lipid lowering treatment), Mark Caulfield from London, UK (antihypertensive treatment and genes), Antonio Coca, Barcelona, Spain (cerebral lesions), Denis Clement from Bruselles, Begium (distal blood pressure), Athanasios Manolis from Athens, Greece (arrhythmia and anticoagulant treatment), Michel Burnier from Lausanne, Switzerland (kidney disease), Harry Struijker-Boudier from

Maastricht, Holland (microcirculation) and Alberto Zanchetti from Milan, Italy (clinical evidence).

5. **Board of National Coordinators:** In each country the ESH Centers of Excellence select a representative to apply to the national Ethical Committee for approval and to coordinate the individual countries' participation in the trial.
6. **Measurements:** Using the TOPIC web-program each Center of Excellence registers all relevant data online including medical history, life style, social status, general examinations, traditional risk factors (age, gender, smoking, blood pressure, body mass index, waist/hip ratio, total cholesterol, HDL cholesterol and glucose, HbA1c, hemoglobin, white blood cells, platelets, sodium, potassium, creatinine, carbamid), 24-hour blood pressure (blood pressure measured every 15 minutes for at least 24 hours by a validated oscillometric device), home blood pressure (obtained twice in the morning and twice in the evening over the 7 days preceding each clinic visit by a validated oscillometric device) and different markers of TOD (urine albumin/creatinine ratio, left ventricular (LV) mass index, LV relative wall thickness, LV ejection fraction, pulse wave velocity, augmentation index, Carotid intima-media thickness and plaque, angle-brachial index). Extra blood and urine samples will be frozen for later analyzes of new biomarkers (Cystatin C, soluble urokinase plasminogen activator receptor, high sensitivity C-reactive protein, high sensitivity Troponin T, N-terminal pro brain natriuretic peptide and others not yet identified). Furthermore, each Center of Excellence registers all cardiovascular events and hospitalizations for these subjects during the following five years.
7. **Timetable:** The projects have been approved by the Danish Data Protection Agency (J.nr. 2010-41-5634, CVR-nr. 11-88-37-29) and by the Bioethics Committee of Southern Denmark (Project ID: S-20110002) in March 2011. The project has been announced by e-mail to the ESH Centers of Excellence and will be presented at the annual ESH meeting in Milan, June 2011, where formal training of potential investigators in measuring TOD will begin. In fall 2011, inclusion of subjects will start in those Centers of Excellence which are interested. Gradually, more countries and ESH Centers of Excellence will be included throughout 2012, and the inclusion phase will close during the second half of 2013.
8. **Perspective:** These two projects will increase our understanding of the complex mechanisms underlying the development of TOD and later CVD, which will improve our ability to 1) identify patients not responding to anti-hypertensive treatment much earlier, and 2) predict future CVD. Both of these aims will make possible more individualized and better targeted prevention and treatment, thus offering greater health for less money.

For further details contact Prof. Michael Hecht Olsen (mho@dadlnet.dk)

Looking into the future

The European Society of Hypertension is very well established and in a rather expansive mood. The 2010 and 2011 meetings have attracted more than 1800 original abstracts and this number has been steadily growing year after year. The future lies with young clinicians and scientists who submit their best work for presentations at the ESH meetings as well as with the participants of our annual Hypertension Summer Schools and the awardees of very competitive ESH Fellowships.

Our future activities could be broadly divided into post-graduate education and research. The demand for guidelines on management of hypertension and cardiovascular risk will continue and the very well established ESH guidelines will be updated every couple of years to serve all European Hypertension Specialists and other clinicians. The annual ESH meetings, together with regional master classes, workshops and symposia will contribute to the best possible dissemination of knowledge about prevention and treatment of hypertension and target organ damage. Through the ESH Centres of Excellence, there will be an increasing opportunity to disseminate not only guidelines and the best possible post-graduate education, but also an excellent collaborative research. The example of success here is a project funded by the European Commission under the acronym of the InGenious Hypercare with 32 centres investigating collaboratively various aspects of pathophysiology, genomics and proteomics of hypertension and its complications such as stroke, renal failure and heart failure. Several studies will follow and extend this success with the current ambitious research project named Target Organ Damage in Prospective Intervention Cohort (TOPIC). This study will investigate the prognostic importance of different markers of target organ damage (TOD) and will link to a biomarker substudy investigating the Importance of Genes and Interactions of Risk Factors for Target Organ Damage and Prognosis in Hypertension (HyperGIROD). ESH is also willing to enter more directly into the area of large randomized therapeutic trials, where several important gaps of evidence about therapeutic strategies should be filled by academic driven studies.

It is difficult to predict whether modern technologies such as genomics, pharmacogenomics, proteomics and metabolomics will truly revolutionise our clinical practise. If they do so, ESH is ready to adopt the brave new world of “omics” and the stratified medicine, while simultaneously translating new knowledge into evidence based medicine.

The beauty of hypertension research is that it encompasses almost the entire internal medicine and allows in-depth understanding of big areas of neurology

and stroke medicine, renal medicine, endocrinology, diabetes and the metabolic syndrome. Therefore, both research and teaching and learning in hypertension must be seen now and in the future as much more than just blood pressure. To facilitate these changes in perception of the ESH role and aims, the name of our annual meeting will be changed to the European Meeting on Hypertension and Cardiovascular Protection as from the 2012 London meeting. After 2012, we plan to meet in Milan in 2013, in Athens in 2014, in Milan in 2015 and in Paris in 2016.

Future ESH annual meetings:

- 22nd European Meeting on Hypertension and Cardiovascular Protection — London (UK), 26th–29th April 2012
- 23rd European Meeting on Hypertension and Cardiovascular Protection — Milan (Italy), 14th–18th June 2013
- 24th European Meeting on Hypertension and Cardiovascular Protection — Athens (Greece), 14th–19th June 2014 (joint ISH/ESH meeting)
- 25th European Meeting on Hypertension and Cardiovascular Protection — Milan (Italy), 12th–15th June 2015
- 26th European Meeting on Hypertension and Cardiovascular Protection — Paris (France), 10th–14th June 2016