

Circulation

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European Perspectives in Cardiology



Spotlight: Sverre Erik Kjeldsen, MD, PhD, FAHA, FESC



A Leader of Investigator-Initiated Large Randomised, Controlled Hypertension Trials That Have Influenced the Guidelines

Sverre Erik Kjeldsen, professor and chief physician, Department of Cardiology, Oslo University Hospital Ullevaal, Oslo, Norway, and adjunct professor of medicine, Division of Cardiovascular Medicine, University of Michigan, Ann Arbor, MI, talks to Mark Nicholls.

Large randomised, controlled hypertension trials that have impacted hypertension treatment guidelines feature prominently in the career of Sverre Erik Kjeldsen, MD, PhD, FAHA, FESC, professor and chief physician, Department of Cardiology, Oslo University Hospital Ullevaal, Oslo, Norway, and adjunct professor of medicine, Division of Cardiovascular Medicine, University of Michigan, Ann Arbor, MI.

He says, “The most important studies from my point of view are the Nordic Diltiazem [NORDIL] trial, the first trial of a calcium channel blocker in hypertension¹; the Losartan Intervention For Endpoint [LIFE] trial, the first trial of an angiotensin receptor blocker in hypertension and the first, and so far the only, trial in patients with hypertensive heart disease²; the Valsartan Antihypertensive Long-Term Use Evaluation [VALUE], the first, and so far the only, comparison of a calcium channel blocker and a renin-angiotensin-aldosterone system inhibitor in hypertension³; and the Anglo-Scandinavian Cardiac Outcomes Trial [ASCOT], the first successful statin trial in hypertension,⁴ and the first trial of a calcium channel blocker and renin-angiotensin-aldosterone system inhibitor combination in hypertension.”⁵

Other important trials involving Professor Kjeldsen include the Avoiding Cardiovascular Events Through Combination Therapy in Patients Living With Systolic Hypertension (ACCOMPLISH) trial, which was the first trial to compare the cardiovascular outcomes of initial

fixed-dose combination angiotensin-converting enzyme inhibitor/calcium channel blocker and angiotensin-converting enzyme inhibitor/diuretic therapy in patients with hypertension and a high risk of cardiovascular events.⁶

Another trial, the Hypertension Optimal Treatment (HOT) study, was a prospective trial conducted in 26 countries.⁷ It evaluated the relationship between 3 levels of target office diastolic blood pressure (80, 85, or 90 mm Hg) and cardiovascular morbidity and mortality, and examined the effects of 75 mg aspirin daily versus placebo on these outcomes. HOT also examined home blood pressure in treated hypertensive patients.

“I Soon Discovered That Most Hypertension Complications Are in the Field of Cardiology”

Professor Kjeldsen’s main research interest is the pathophysiology, epidemiology, and treatment of human hypertension, and he has published ≈300 full peer-reviewed original articles. This interest began in 1979 after graduating from medical school at the University of Oslo, when he started investigating patients recruited from the Oslo Study on Cardiovascular Diseases under the supervision of senior staff in the Department of Nephrology and the Department of Cardiology at Ullevaal University Hospital. This led to a PhD, which he gained in 1984; his internship included 12 months of army service. He recalls, “It started with the plasma catecholamines,⁸ which were increased in early

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Leading by Example: Sverre Erik Kjeldsen, MD, PhD, FAHA, FESC

Professor Kjeldsen of the Department of Cardiology, Oslo University Hospital Ullevaal, Oslo, Norway, and adjunct professor of medicine, Division of Cardiovascular Medicine, University of Michigan, Ann Arbor, MI, describes his heart-healthy lifestyle and says, “We have cardiology working lunch hours, and I take a can of mackerel or sardines to put on my bread for lunch.”

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Much of Professor Kjeldsen's trial work is linked with the University of Michigan, where he worked for 2 years as assistant professor in the Division of Hypertension from 1987 to 1989 after his PhD on plasma catecholamines in hypertension. His department chief, Professor Stevo Julius, MD, ScD, was "an inspiration," and this period of his life was the most significant single event in determining his future career. Professor Kjeldsen has since collaborated with a number of colleagues in his current role as adjunct professor of medicine at the Division of Cardiovascular Medicine. He explains, "The main reason for this was that some of the largest randomised, controlled trials (HOT, LIFE, VALUE, and ACCOMPLISH) were partly organised through both institutions. This 1987 photo shows Professor Kjeldsen (upper right) with MDs at the University of Michigan. The senior staff members, Professors Andrew Zweifler, Stevo Julius, and David Basset, are in the middle of the front row". Photograph courtesy of Professor Kjeldsen.

hypertension, and escalated from there." He adds, "While this was inspiring and taught me a lot about renal physiology, which I still benefit from, I soon discovered that most hypertension complications are in the field of cardiology."

Professor Kjeldsen therefore began general internal medicine training in the Department of Cardiology in Oslo in 1986, and the following year he left for work experience as an assistant professor in the Division of Hypertension at the University of Michigan. He says, "Realising the importance of cardiovascular diseases and the significance of hypertension as the most important risk factor, I became involved in some serious research there, including the epidemiological survey in Tecumseh, MI, haemodynamic studies, and further work on the sympathetic nervous system. On returning to Oslo in late 1989, I had expanded my network of contacts in the field of hypertension research, and I started to get involved in the leadership of planning and organising large randomised, controlled trials."

"My research continued to focus on hypertension, more or less all aspects, including pathophysiology, epidemiology, and treatment of uncomplicated and complicated high-risk hypertension, including large studies of patients with hypertensive heart disease (left ventricular hypertrophy). This included working with ≈25 other MDs finishing their PhD training in this field and being chief supervisor of about half of these people."

Professor Kjeldsen has won a number of awards for his work over the years. These include the International Society of Hypertension Schering Plough Fellowship Award in 1988, the Ullevaal University Hospital Research Award in 1992, the Blood Pressure Young Author Award in 1997, the Norwegian Society of Cardiology (Ole Storstein's) Scientific Award in 2002, Ullevaal University

Hospital Research Award in 2003, and the Lennart Hansson Memorial Award and Lecture at the European Society of Hypertension meeting in Berlin, Germany, in 2008.

Professor Kjeldsen's work is funded by Oslo University Hospital Ullevaal, the University of Oslo, the University of Michigan, the Norwegian Council on Cardiovascular Disease, and the Norwegian Government (South-East Health Authority). His randomised, controlled trials are funded by grants from the pharmaceutical industry, but all are investigator initiated and chaired.

"Regression of Left Ventricular Hypertrophy and Reduction of Proteinuria During Antihypertensive Treatment of Patients With Left Ventricular Hypertrophy Translate into Less Cardiovascular Endpoints"

Professor Kjeldsen says it is impossible to choose his most enjoyable work, but he looks back fondly to being an MD PhD student in the early 1980s and doing hands-on research.⁹ He adds, "Of course, the investigator-initiated large randomised, controlled trials have been the most important, because they have rather strongly influenced the guidelines and clinical practice."

A number of articles have affected his work over the years. He highlights, "All the noncommercial articles from LIFE showing that the regression of left ventricular hypertrophy and the reduction of proteinuria during antihypertensive treatment of patients with left ventricular hypertrophy translate into less cardiovascular endpoints."¹⁰ He says, "We have shown this for cardiovascular mortality, myocardial infarction, stroke, sudden cardiac death, coronary artery bypass grafting, and incidental atrial fibrillation, diabetes mellitus, and heart failure."^{11,12}



Left: Professor Kjeldsen in the Swiss Alps with Professor Krzysztof Narkiewicz, MD, PhD, president of the European Society of Hypertension (ESH). Right: Professor Kjeldsen chairing a meeting of the ESH. He joined the ESH Council in 1999, and became editor of the first 25 issues of ESH Scientific Newsletters, and later of numerous organisational newsletters, and he helped structure the Society. He was appointed officer-at-large in 2003, president in 2005, past-president in 2007–2009, and meeting president in 2010. As a fellow of the European Society of Cardiology, he was involved in the leadership of developing the most cited European Society of Cardiology guidelines (ESH/European Society of Cardiology Hypertension Guidelines 2003¹³ and 2007), and is currently on the nucleus of the working group Hypertension and the Heart. He is also a fellow of the American Heart Association and of the Council for High Blood Pressure Research. Photographs courtesy of Professor Kjeldsen.

Born in Oslo in 1953 during the Cold War, Professor Kjeldsen was brought up in various military camps and naval establishments in Norway and England. His medical interest runs in his family. He says, “There are several physicians and nurses on my mother’s side, including her MD brother, and my oldest daughter is currently finishing an MD PhD fellowship grant sponsored by the Norwegian government.”

Medical mentors who helped shape his early career include his supervisors in the Department of Nephrology at Ullevaal University Hospital in the late 1970s, Ivar Eide, MD, PhD, and Erik Enger, MD, PhD. Dr Eide had returned from work experience at University of California Los Angeles with the plasma catecholamine analysis, and set it up in their research lab.

The late Professor Lennart Hansson, MD, PhD, at the University of Uppsala also proved influential, alongside many other medicine professors in Norway, the United States, and Europe whom Professor Kjeldsen has collaborated with in research, politics, and administrative work.

Professor Kjeldsen finished a fellowship in cardiology in Oslo in 1993 and obtained a staff position as associate professor and chief of a cardiology ward section in 1993. From 1999 to 2005, he was chief of cardiology, and he became a full professor of cardiology in 2002. His current role as professor and chief physician at the Department of Cardiology, Oslo University Hospital Ullevaal (the major hospital in Norway) sees him work on a 50–50 basis as full professor of cardiology and senior consultant in cardiology. He says, “I spend my university time teaching medical students in clinical cardiology and supervising ≈10 MD PhD candidates doing their research on hypertension, cardiovascular epidemiology, or cardiology. I spend my

hospital time supervising residents and interns on inpatient clinical cardiology work, and sporadically I get involved in outpatient work.”

Professor Kjeldsen’s teaching and administrative career has led to his roles as a member of the commission for internal medicine examination at the University of Oslo since 2002, organising teaching and examinations for the medical students, and as an organiser and board member of the Norwegian Society of Hypertension since 1986, organising annual meetings or courses on hypertension for Norwegian physicians. Professor Kjeldsen is an honorary member of the Swedish Society of Hypertension, the Hungarian Society of Hypertension, the Bulgarian Society of Hypertension, and the Polish Society of Hypertension.

Factors that Professor Kjeldsen has regarded as challenging over the years include the approach to hypertension in Norway. He says, “I have been concerned over the years that physicians in my own country do not detect and treat hypertension according to international standards.” He has attempted to implement international standards, but these attempts have been met with a degree of resistance.

He would advise people wanting to follow a career in medicine or cardiology to work hard, “go by the book, follow the rules,” and get into research at an early stage. He also stresses the importance of collecting friends and networking to help develop a career in medicine.

As for his own future, Professor Kjeldsen aims to continue his present activities until at least 2015, a period that may also include a sabbatical year at the University of Michigan. He also hopes to develop a large, yet partly unexplored, dataset among hypertensive patients and see numerous MD PhD students finish their scientific work and defend their theses at the University of Oslo.



Professor Kjeldsen has lived in Oslo since 1964, except for the 2 years he lived in Michigan. He has 3 children from his first marriage to Anne Marit, who died of cancer in 1998: Anne Cecilie, MD, who is married with 2 children; Erik Kristoffer, an aircraft pilot; and Kimberley, a senior at the Academy of Art University in San Francisco, CA. Left, Professor Kjeldsen with his second wife, Liv Jorunn, whom he married in 2001, and their daughter, Ildri Maria, and son, Gunnar. Centre, Professor Kjeldsen and his family at Kimberley's graduation in Seattle, WA, in 2006. Right: Professor Kjeldsen with his youngest grandchild. Photographs courtesy of Professor Kjeldsen.

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Mark Nicholls is a freelance medical journalist.

Leading by Example: Sverre Erik Kjeldsen, MD, PhD, FAHA, FESC



“We Have Cardiology Working Lunch Hours, and I Take a Can of Mackerel or Sardines (*Brislings*, in Norway) to Put on My Bread”

Sverre Erik Kjeldsen, professor and chief physician, Department of Cardiology, Oslo University Hospital Ullevaal, Oslo, Norway, and adjunct professor of medicine, Division of Cardiovascular Medicine, University of Michigan, Ann Arbor, MI, outlines his heart-healthy lifestyle to Mark Nicholls.

A heart-healthy approach to life is important for Sverre Erik Kjeldsen, MD, PhD, FAHA, FESC, professor and chief physician, Department of Cardiology, Ullevaal University Hospital, Oslo, Norway, and adjunct professor of medicine, Division of Cardiovascular Medicine, University of Michigan, Ann Arbor, MI, and his family. He says, “Probably the healthiest diet you can think of (at least, we believe) is seafood, pasta, green vegetables, fruit, olive oil, and no salt.”



In terms of exercise he says, “My favourite form of exercise is being on the snowboard or rollerblades, but cross-country skiing probably provides the best exercise, along with quite a lot of jogging and swimming in the fiord in the summer.” Professor Kjeldsen also spends a lot of time in the mountains of western Norway, climbing mountains from sea level up to 800–1500 metres for up to 7 hours with ascent and descent. He adds, “I have also done the Oslo half marathon 10 years in a row, and I finished the New York marathon in 1994.” However, he usually takes the street tram, or drives the 10 km to work, because he has a heavy briefcase.

Norway’s unique climate and terrain lends itself to a variety of sporting activities throughout the year. Professor Kjeldsen explains, “My winter sport is mostly cross-country skiing and occasionally slalom, downhill skiing, or snowboarding. Typically, we do 20–30 km skiing on a Sunday in the woods north of Oslo, which takes 3–4 hours, including breaks for food.” Over Christmas and during the winter vacations, he goes skiing virtually every day, and he takes advantage of the downhill just up the hill from his home in Oslo for snowboarding. Summer sport includes jogging or cycling, up to 15 km from his home to the city centre, or salt water swimming or roller blading almost every afternoon after he finishes work. His wife, Liv Jorunn, and children, Ildri Maria and Gunnar, often join him.



Professor Kjeldsen and his wife eat seafood and oily fish almost every day for dinner at 5 PM or pasta or poultry as an alternative, with a lot of vegetables and fruit, but almost never red meat. He says, “In addition to dinner, I take a can of mackerel or sardines (*brislings*, in Norway) to put on my bread for lunch. We have a cardiology working lunch hour from noon until 1 PM, and most of the physicians do the same. People recruited from other institutions learn fast and quickly pick up this local habit.”

Professor Kjeldsen never adds salt to his food, avoids salty canned food and salty meat, fish, or bread, and lectures against high salt intake at scientific meetings. He says, “I also collect recipes without salt.” A friend from Oslo, Professor Leif Ose, MD, PhD, has written a book on a heart-healthy diet, and Professor Kjeldsen and his wife follow it in detail.

Professor Kjeldsen enjoys cooking, particularly for guests from abroad. He says, “When I am cooking myself, it is mostly fresh codfish or red salmon brought in on ice from northern Norway.” Among those who have enjoyed his healthy home cooking is the former president of the American Heart Association, Professor Suzanne Oparil, MD, FAHA, of the University of Alabama, Birmingham, AL, and director of the Vascular Biology and Hypertension Program, who has visited on a number of occasions.



Smoking is banned in Professor Kjeldsen’s house, but he does enjoy a glass of red wine. He says, “We have 1 glass of red wine every evening to improve the television news... standard cheap red wine in a huge glass. My wife and I share 1 bottle in 2 days.” He adds that the only way he feels he could further improve his healthy lifestyle would be to put less time into work and more into lifestyle issues, a move he will consider when he reaches age 65.

Photographs courtesy of Professor Kjeldsen.

Mark Nicholls is a freelance medical journalist.

European Meetings Update

May 2011

1–4 May

19th CSC Annual Congress

Brno, Czech Republic
For further details, contact:
klimova@kardio-cz.cz

4–5 May

The 58th Annual Congress of the Israel Heart Society

Tel Aviv, Israel
For further details, see:
<http://www.israelheart.com/eng/>

4–5 May

Rehabilitation and Participation in Long-Term Conditions: Building Bridges between Researchers, Practitioners and Service Users

Dundee, Scotland
For further details, contact:
f.a.comerford@dundee.ac.uk

4–6 May

XIII Congress of the Swedish Cardiac Society

Örebro, Sweden
For further details, see:
<http://www.malmokongressbyra.se>

6–7 May

Annual Scientific Meeting of Danish Society of Cardiology

Nyborg
Denmark, For further details, contact:
dcs@dadlnet.dk

7–8 May

Heart Failure Awareness Days

All over Europe
For further details, contact:
<http://www.escardio.org/Pages/ContactUs.aspx?categoryid=32>

11–11 May

Recanalization Techniques of Leg and Foot Arteries

Noordwijkerhout, The Netherlands
For further details, contact:
info@dgmp.it

11–14 May

42 Annual Meeting of the ANMCO

Florence, Italy
For further details, contact:
segreteria@federcardio.it

11–14 May

Annual meeting of the Hungarian Society of Cardiology

Balatonfüred, Hungary
For further details, contact:
titkarsag@mkardio.hu

15–18 May

ICNC10 Nuclear Cardiology and Cardiac CT

Amsterdam, The Netherlands
For further details, see:
<http://www.escardio.org/congresses/ICNC10>

17–20 May

EuroPCR 2011

Paris, France
For further details, contact:
europcr@europa-organisation.com

18–20 May

II International Congress: Cardiology at a Crossroad of Sciences

Tyumen, Russia
For further details, contact:
tyumen_cardio@yahoo.com

20–22 May

60th ESCVS International Congress

Moscow, Russia

21–24 May

Heart Failure 2011

Gothenburg, Sweden
For further details, contact:
HFsecretariat@escardio.org

23–25 May

Cardiology and Vascular Medicine 2011

Rotterdam, The Netherlands
For further details, contact:
m.stofregen@erasmusmc.nl

23–27 May

Conference—Hammersmith Echocardiography

London, England
For further details, contact:
info@w12conferences.co.uk

25–27 May

Biannual Congress of the Armenian Cardiologists Association

Yerevan, Armenia
For further details, contact:
zelveian@armeda.am

25–28 May

Annual Congress of the Austrian Society of Cardiology

Salzburg, Austria
For further details, contact:
office@atcardio.at

26–27 May

2nd Nordic Symposium on Cardiac CT

Marseille, France
For further details, see:
<http://nct2011.eu/contact-us/>

26–28 May

RHYTHM Congress 2011

Silkeborg, Denmark
For further details, see:
carzouyan@rhythmcongress.com

28–29 May

Intensive Course in Tracer Methodology in Metabolism

Athens, Greece

29–31 May

Mediterranean Cardiology Meeting

Taormina, Italy
For further details, contact:
info@mcmweb.it

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