

Huseyin Naci, Panos Vardas, Alec Vahanian, Paulus Kirchhof, Isabel Bardinnet, and Elias Mossialos

Training the next generation of cardiovascular leaders in health policy and economics

**Article (Accepted version)
(Refereed)**

Original citation: Naci, Huseyin and Vardas, Panos and Vahanian, Alec and Kirchhof, Paulus and Bardinnet, Isabel and Mossialos, Elias (2017) *Training the next generation of cardiovascular leaders in health policy and economics*. [European Heart Journal](#), 38 (45). pp. 3332-3335. ISSN 0195-668X
DOI: [10.1093/eurheartj/ehx673](https://doi.org/10.1093/eurheartj/ehx673)

© 2017 [Oxford University Press](#)

This version available at: <http://eprints.lse.ac.uk/87052/>
Available in LSE Research Online: March 2018

LSE has developed LSE Research Online so that users may access research output of the School. Copyright © and Moral Rights for the papers on this site are retained by the individual authors and/or other copyright owners. Users may download and/or print one copy of any article(s) in LSE Research Online to facilitate their private study or for non-commercial research. You may not engage in further distribution of the material or use it for any profit-making activities or any commercial gain. You may freely distribute the URL (<http://eprints.lse.ac.uk>) of the LSE Research Online website.

This document is the author's final accepted version of the journal article. There may be differences between this version and the published version. You are advised to consult the publisher's version if you wish to cite from it.

Training the next generation of cardiovascular leaders in health policy and economics

Huseyin Naci, Panos Vardas, Alec Vahanian, Paulus Kirchhof, Isabel Bardinnet, and Elias Mossialos

The recent history of cardiovascular medicine is a remarkable success story. Since the early 1970s, total cardiovascular mortality in Europe and the United States declined on average 50% for both men and women.¹ In the United Kingdom alone, approximately 70,000 deaths were prevented or postponed between 1980 and 2000.² Although this decline started approximately 25 years later in Eastern European countries, cardiovascular mortality in Eastern Europe has also been steadily decreasing since the 1990s.³

Much of the observed decline in cardiovascular mortality has been attributed to public health approaches and primary prevention. Improvements in population level risk factors such as smoking cessation, and blood pressure and cholesterol control have been shown to be responsible for more than half of the reductions in cardiovascular mortality over the past two decades.⁴ Significant advances in medical and surgical treatments have accounted for the remaining 40-45% of the total mortality decrease.^{5,6} In particular, secondary preventive therapies after myocardial infarction or revascularization, initial treatments for acute myocardial infarction or unstable angina, treatments for heart failure, and revascularization for chronic angina have contributed to major improvements.

Despite these major successes, the burden of cardiovascular disease remains significant. According to the most recent Global Burden of Disease study, ischemic heart disease and stroke account for the majority of deaths around the world.⁷ In 2013, approximately one third of all deaths (~17 million) were attributable to cardiovascular disease – a 35% increase since 1990.⁸ Globally, cardiovascular diseases are afflicting ever-increasing numbers of young and middle-aged adults. This is especially so in low and middle income countries that are faced with the double burden of communicable and non-communicable diseases to which cardiovascular illnesses contribute significantly.⁹ Nearly 80% of the world's more than 1 billion smokers live in low- and middle-income countries.¹⁰ Respectively, ischemic heart disease and stroke are responsible for the first and third highest numbers of years of life lost and disability-adjusted life years worldwide, replacing childhood conditions from 1990 to 2010.¹¹

In addition to such significant burden of mortality and morbidity, cardiovascular diseases face important quality challenges that extend beyond the traditional boundaries of medical science and practice. For example, there are substantial and quantifiable equity issues: cardiovascular mortality is higher in people with low education, income, social class or those in marginalized ethnic groups and those living in poor and deprived communities.⁹ There are also complex behavioral issues: patients rarely adhere to their medications and there is a significant decline in the use of medications after treatment initiation.¹² As a result, a large proportion of individuals have cardiovascular risk factors that remain uncontrolled despite the availability of proven, effective, and often inexpensive therapies.¹³

Economic, workforce-related, and political challenges around the world are straining government budgets, and putting unprecedented pressure on health care delivery systems. Currently, the quality of cardiovascular care delivery remains sub-optimal even in some of the richest parts of the world.¹⁴ There is now a chasm between what should happen versus what

does happen in health care systems. Despite the recent emergence of health technology assessment and clinical practice guideline development efforts over the past decades, observed differences between evidence-based recommendations and their implementation – the so-called evidence-practice gaps – are widespread.¹⁵ While health care systems heavily invest in efforts to ensure appropriate provision and use of technologies and services, under-use and over-use problems continue to co-exist side-by-side.¹⁶ There is both a lack of implementation of some proven effective strategies, and also inappropriate use of strategies with strong evidence against, or insufficient evidence for their effectiveness and safety.

A new future in cardiovascular medicine

Tackling these challenges is not straightforward and warrants innovative policy and management responses. A new generation of leaders from within the profession can devise creative solutions and transform the future of cardiovascular medicine. Key insights from social and behavioral sciences can help towards this goal. Over the past decades, cardiovascular medicine has served as an incubator for developing and testing innovative policy mechanisms in health care such as pay-for-performance.¹⁷ This is perhaps unsurprising as several cardiovascular outcomes are relatively easy to capture in routinely collected administrative databases and thus amenable to monitoring, measurement, and accountability. In fact, many quality improvement interventions that are commonplace today (e.g., public reporting of outcome data) were first developed, tested and subsequently rolled out in cardiovascular medicine.¹⁸

The reach of policy and economics in cardiovascular medicine is far and wide.¹⁹ As new innovative medical and surgical interventions are approved or adopted, their affordability is almost as widely discussed and debated as their health benefits and safety. Questions to which the fields of health policy and economics can help answer are several and include: How are funds collected, pooled and allocated in health care systems? What are the implications of different health financing mechanisms? What are the advantages and disadvantages of the current processes for medical technology approval and reimbursement? Which population sub-groups are eligible to receive care and at what cost? What type of evidence is used to inform practice guidelines and quality indicators that increasingly form the basis of physician compensation?

As an increasing number of countries experiment with new policy mechanisms aimed at improving quality and access, and containing costs, cardiovascular experts are best suited to join forces with health services researchers, managers, economists, and policymakers to inform the design, implementation and evaluation of future interventions. An interdisciplinary training program can help ensure that stakeholders from different perspectives and backgrounds adopt a common language when discussing current issues and considering alternative solutions.

An innovative program for future leaders in cardiovascular medicine

The European Heart Academy of the European Society of Cardiology has joined forces with the London School of Economics and Political Science (LSE), a global leader in social sciences research and teaching, to develop and deliver a unique Master's degree program on health economics, policy and outcomes research aimed at health care professionals in cardiovascular sciences with full-time employment (**Box**).

Currently in its 3rd year, the master's level program has already trained approximately 80 cardiovascular specialists from over 20 countries. The program has a carefully crafted curriculum to ensure that health care professionals in the cardiovascular medicine field gain a complementary set of skills to their specialized training in clinical medicine. In addition to compulsory courses focused on quality, economics, and policy, a range of optional modules tackle not only today's challenges like management and health technology assessment but also

tomorrow's opportunities such as behavioral science and performance measurement in a fast-changing health care environment (**Table**).

With advanced training in outcomes research, policy, and health economics, course participants leave the program equipped with key skills to become the future champions of policy and management change in their clinics, hospitals, national and regional health systems, regulatory authorities and even at the world stage. An expanding network of graduates are expected to take on roles in guideline development panels, health technology assessment committees, public-private research initiatives, consulting companies, and pharmaceutical, medical device, biotech, and big data and data analytics industries.^{20,21}

Conclusion

As health care costs continue to rise, cardiovascular medicine will undisputedly come under greater scrutiny over the next decade. LSE's inter-disciplinary post-graduate training program developed in collaboration with the ESC is aimed at equipping health care professionals within cardiovascular medicine with a highly relevant skillset in social sciences. With such training, researchers and practitioners from within the profession have an opportunity to become active voices and role models in discussions that affect every corner of medicine and its practice.

References

1. Kesteloot H, Sans S, Kromhout D. Dynamics of cardiovascular and all-cause mortality in Western and Eastern Europe between 1970 and 2000. *European heart journal*. 2005;27(1):107-113.
2. Unal B, Critchley JA, Capewell S. Explaining the decline in coronary heart disease mortality in England and Wales between 1981 and 2000. *Circulation*. 2004;109(9):1101-1107.
3. Newey C, Nolte E, McKee M, Mossialos E. *Avoidable mortality in the enlarged European Union. Technical Report*. Institut des Sciences de la Sante, Paris;2004.
4. Ford ES, Ajani UA, Croft JB, et al. Explaining the decrease in US deaths from coronary disease, 1980–2000. *New England Journal of Medicine*. 2007;356(23):2388-2398.
5. Unal B, Critchley JA, Capewell S. Modelling the decline in coronary heart disease deaths in England and Wales, 1981-2000: comparing contributions from primary prevention and secondary prevention. *Bmj*. 2005;331(7517):614.
6. Ezzati M, Obermeyer Z, Tzoulaki I, Mayosi BM, Elliott P, Leon DA. Contributions of risk factors and medical care to cardiovascular mortality trends. *Nature reviews Cardiology*. 2015;12(9):508-530.
7. Feigin VL, Forouzanfar MH, Krishnamurthi R, et al. Global and regional burden of stroke during 1990–2010: findings from the Global Burden of Disease Study 2010. *The Lancet*. 2014;383(9913):245-255.
8. Moran AE, Forouzanfar MH, Roth G, et al. Temporal trends in ischemic heart disease mortality in 21 world regions, 1980-2010: The Global Burden of Disease 2010 Study. *Circulation*. 2014:CIRCULATIONAHA. 113.004042.
9. Roth GA, Huffman MD, Moran AE, et al. Global and regional patterns in cardiovascular mortality from 1990 to 2013. *Circulation*. 2015;132(17):1667-1678.
10. Organization WH. *WHO report on the global tobacco epidemic 2015: raising taxes on tobacco*. World Health Organization; 2015.
11. Abubakar I, Tillmann T, Banerjee A. Global, regional, and national age-sex specific all-cause and cause-specific mortality for 240 causes of death, 1990-2013: a systematic analysis for the Global Burden of Disease Study 2013. *Lancet*. 2015;385(9963):117-171.

12. Yusuf S, Islam S, Chow CK, et al. Use of secondary prevention drugs for cardiovascular disease in the community in high-income, middle-income, and low-income countries (the PURE Study): a prospective epidemiological survey. *The Lancet*. 2011;378(9798):1231-1243.
13. Banegas JR, López-García E, Dallongeville J, et al. Achievement of treatment goals for primary prevention of cardiovascular disease in clinical practice across Europe: the EURIKA study. *European heart journal*. 2011;32(17):2143-2152.
14. McGlynn EA, Asch SM, Adams J, et al. The quality of health care delivered to adults in the United States. *New England journal of medicine*. 2003;348(26):2635-2645.
15. Nieuwlaat R, Schwalm J-D, Khatib R, Yusuf S. Why are we failing to implement effective therapies in cardiovascular disease? *European heart journal*. 2013;34(17):1262-1269.
16. Saini V, Brownlee S, Elshaug AG, Glasziou P, Heath I. Addressing overuse and underuse around the world. *The Lancet*. 2017.
17. Joynt KE. Health Policy and Cardiovascular Medicine. *Circulation*. 2015;131(12):1098-1105.
18. Joynt KE, Maddox TM. Leading on Payment and Delivery Reform in Cardiology. *Jama cardiology*. 2017;2(2):121-123.
19. Maddox TM, Ho PM. Health Services Research in Improving the Delivery of Care for Patients with Cardiovascular Diseases. *Circulation*. 2017;135(5):403-405.
20. Naci H, Cooper J, Mossialos E. Timely publication and sharing of trial data: opportunities and challenges for comparative effectiveness research in cardiovascular disease. *European Heart Journal—Quality of Care and Clinical Outcomes*. 2015;1(2):58-65.
21. Salas-Vega S, Haimann A, Mossialos E. Big Data and Health Care: Challenges and Opportunities for Coordinated Policy Development in the EU. *Health Systems & Reform*. 2015;1(4):285-300.

Box: Origin and evolution of the program

- The idea for the Executive MSc in Health Economics, Outcomes and Management in Cardiovascular Sciences was conceived jointly by Professors Elias Mossialos and Panos Vardas in 2014.
- The vision behind the program was to equip cardiovascular specialists with essential research and policy skills to make active contributors to health policy discussions.
- To implement this vision, a working group was immediately formed and included Huseyin Naci and Paulus Kirchhof in addition to Panos Vardas and Elias Mossialos.
- The working group collaborated on designing a curriculum and establishing an innovative set of modules and assessments.
- Following the program's successful launch in December 2015 with its first intake of 39 students, a Steering Committee was formed to monitor the program's implementation and identify opportunities for participants. The current Steering Committee includes Panos Vardas (Past President of ESC and Chief Strategy Officer of EHA), Alec Vahanian (Chair of EHA), Isabel Bardinnet (Executive Director of ESC), Huseyin Naci (MSc Program Co-Director, LSE), Mark Maloney (Head of Academic Partnerships, LSE), and Elias Mossialos (MSc Program Co-Director, LSE).
- In its first 2 years, the program has attracted high-profile speakers including Jeroen Bax (President of ESC), Sir Professor Julian LeGrand (Former Senior Advisor to Tony Blair), Leeza Osipenko (Director of Scientific Advice, National Institute for Health and Care Excellence), Dr Matt Kearney (National Clinical Director for Cardiovascular Disease Prevention, NHS England), and Professor Tony Rudd (National Clinical Director for Stroke, NHS England).

Table: Program structure and overview of modules

Compulsory Modules	Optional Modules (Required to take 3 of 6)
Quality and Outcomes in Cardiovascular Sciences <ul style="list-style-type: none"> Provides an overview of the concept of quality, its key components, and its measurement in different health care systems. Offers a critical perspective on the literature evaluating quality improvement interventions focused on the cardiovascular disease field. 	Measuring Health System Performance <ul style="list-style-type: none"> Presents a framework to discuss the opportunities and challenges with performance measurement in health care. Focuses on the measurement instruments and analytic tools needed for performance measurement.
Economic Analysis for Health Policy <ul style="list-style-type: none"> Serves as an introduction to major developments in the economics of health and health care. Provides health care professionals with a strong understanding of the role economics can play in health policy and health system administration 	Financing Health Care <ul style="list-style-type: none"> Gives a thorough grounding in health financing policy. Focuses on the health financing functions of collecting revenue, pooling funds and purchasing services, as well as on policy choices concerning coverage, resource allocation and provider payment mechanisms.
Systematic Review and Meta-analysis <ul style="list-style-type: none"> Covers the principles of reviewing and synthesizing the existing body of literature. Provides an overview of methods for quantitatively synthesizing multiple randomized controlled trials in meta-analysis. 	Research Design for Evaluating Health Programs and Policies <ul style="list-style-type: none"> Provides a practical overview of the principles and models of evaluation, and the role of theories, concepts, and hypotheses. Covers study design choices in light of bias, validity and other design trade-offs.
Economic Evaluation in Health Care <ul style="list-style-type: none"> Focuses on analytic methods in the economic evaluation of health interventions. Provides a strong foundation in cost-effectiveness analysis of interventions used in long-term chronic illnesses. 	Behavioral Science for Health <ul style="list-style-type: none"> Introduces the main tools and principles of behavioural sciences and the key state-of-the-art applications to health economics, policy, and management. Applies behavioural science tools to concrete challenges in the health area.
Using Health Economics to Analyse and Inform Policy and Practice <ul style="list-style-type: none"> Gives an overview on how health systems are constructed, and how the various parts of the system interact. Focuses on the role of regulation, resource allocation, payment arrangements, and the complexities of evaluating policy and performance. 	Principles of Health Technology Assessment <ul style="list-style-type: none"> Introduces the role of Health Technology Assessment in health care reimbursement and coverage decision making. Covers the key operational modalities of Health Technology Assessment, the different models of value assessment and how they link to decision-making.
Dissertation <ul style="list-style-type: none"> Offers an opportunity to carry out independent study. Integrates approaches and knowledge learned across courses and present results to address a health/clinical policy. 	Introduction to Management in Health Care <ul style="list-style-type: none"> Introduces the main principles of management and strategy and related issues that impact on organisational change, group decision making, innovation and leadership. Applies academic management knowledge to health care practice.