

# Congress News

ESC Congress **Paris 2019**

Together with **World Congress of Cardiology**

Day 5

Wednesday 4 September

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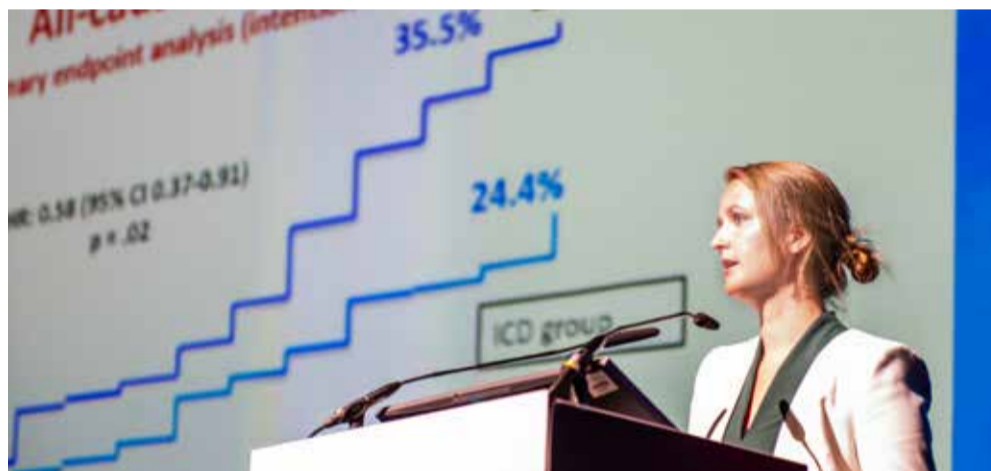
## Survival outcomes with early defibrillator implantation after primary angioplasty in high-risk STEMI patients

**Selected patients at high risk of sudden cardiac death after ST-elevation myocardial infarction (STEMI) may benefit from early implantable cardioverter-defibrillator (ICD) use, according to results from the Defibrillator After Primary Angioplasty (DAPA) trial presented by Doctor Danielle Haanschoten (Isala Heart Centre, Zwolle, Netherlands) in a Hot Line Session yesterday.**

The risk of death is highest in the first 6 months following myocardial infarction (MI).<sup>1,2</sup> However, current ESC Guidelines recommend a delay of at least 6 weeks after MI before considering eligibility for prophylactic ICD implantation.<sup>3</sup> "The DAPA trial aimed to evaluate the survival benefit of early prophylactic ICD implantation in high-risk STEMI patients treated with primary percutaneous coronary intervention (PCI), an area where data have been lacking," explains Dr. Haanschoten. "Previously, the MADIT II landmark trial had clearly shown a benefit with ICD after MI in patients with reduced left ventricular (LV) function, but implantation was much later after MI, with a mean of 6.7 years."

In the DAPA randomised controlled trial, patients at high risk of death after PCI—those with either TIMI flow <3 after PCI, LV ejection fraction (LVEF) <30%, Killip class ≥2 or primary ventricular fibrillation—were randomised to conventional medical therapy with or without early (i.e., within 30–60 days of PCI) implantation of a single-chamber ICD.<sup>2</sup> The primary endpoint was all-cause mortality after 3 years follow-up. Secondary endpoints included cardiac mortality (heart failure-related deaths, arrhythmia-related deaths, sudden cardiac death) and non-cardiac mortality.

After enrolment of 266 patients, the DAPA trial was stopped prematurely in 2013 by the Data Safety Monitoring Committee due to the slow inclusion rate (the trial required 700 patients to be powered to demonstrate a significant difference between the arms). Yesterday, Dr. Haanschoten presented results from an additional survival assessment that was performed in February 2019 after a median of nine years' follow-up.



In a patient population with mainly large anterior infarctions and mean time from MI until ICD implantation of 50 days, 24.4% of patients in the ICD group died compared with 35.5% of patients in the control group (hazard ratio [HR] 0.58; 95% confidence interval [CI] 0.37–0.91;  $p=0.02$ ). "The all-cause survival curves showed signs of divergence within the first year and continued to diverge throughout the nine-year follow-up period. The difference was mainly driven by cardiac deaths," comments Doctor Arif Elvan (Director of the Research Institute of Isala Heart Centre, Zwolle, Netherlands). The risk of cardiac death was 11.5% in patients who had an ICD implanted vs 18.5% in those receiving medical therapy alone (HR 0.52; 95% CI 0.28–0.99). Non-cardiac deaths were not significantly different between the arms.

**"LVEF was reassessed after 18 months and in 46% of the patients, LV function had significantly improved in both study arms. Despite this, the survival benefit of early ICD implantation was preserved throughout the follow-up period," says Dr. Haanschoten.**

"This finding is particularly important as, at present, LVEF is the most important selection criterion for prophylactic ICD implantation, and current guidelines do not recommend prophylactic ICD implantation in patients with LVEF >30%," she continues.

"What the DAPA trial results suggest is that we need more sophisticated risk stratification tools beyond LVEF to select patients eligible for early ICD implantation, for example, magnetic resonance images or electrophysiological studies. However, some caution is needed in interpreting these data as the DAPA trial was stopped prematurely."

Dr. Elvan concludes, "Although we had lower-than-planned enrolment, we followed patients for longer than originally planned and performed this additional survival assessment. The findings of DAPA suggest that early (<90 days) prophylactic implantation of an ICD reduces the risk of death in selected high-risk STEMI patients treated with primary PCI. We now need further studies to confirm these findings and establish if changes in clinical practice should be considered."

1. Yap YG, et al. Eur Heart J 2005;14:1385-1393.
2. Ottervanger JP, et al. Am Heart J 2006;152:636-640.
3. 2015 ESC Guidelines for the management of patients with ventricular arrhythmias and the prevention of sudden cardiac death. Eur Heart J 2015;36:2793-2867.

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## Thank you!

You have made ESC Congress 2019 the third largest in the ESC's history: 33,522 participants from a record 151 countries.

This really is the world summit of cardiovascular medicine.

# Causes of death and cardiovascular risk factors by income level: Latest data from PURE

**Yesterday, two Hot Line presentations provided us with the latest data from the Prospective Urban Rural Epidemiology (PURE) study.**

Initiated in 2001, PURE is one of the most extensive prospective studies examining the effects of societal, environmental, behavioural, metabolic and genetic risk factors that influence the development of cardiovascular (CVD) and other non-communicable diseases. The latest analysis included over 150,000 community-dwelling adults (aged 35-70 years) from four high-income, 12 middle-income and five low-income countries across five continents, making it the only study to date that involves standardised data collection from so many different income-level countries. Indeed, the proportions of participants from high-, middle-, and low-income countries (around 11%, 66% and 23%, respectively) reasonably approximate to the distribution among global populations.

Firstly, Doctor Darryl Leong (Population Health Research Institute, McMaster University, Hamilton, Canada) presented an analysis on the primary cause of death. "Although CVD remains the leading cause of death worldwide," says Dr. Leong, "it may be overtaken by cancer in some higher-income countries." The ratio of CVD deaths to cancer deaths in high-, middle- and low-income countries was 0.4, 1.3 and 3.0, respectively. Dr. Leong continues, "Understanding the what and why of trends in death and disease rates is key to improving global health. This shifting pattern in high-income countries reflects how effective we are becoming at preventing and treating CVD. The high rates of CVD and related mortality in low-income countries are likely related to gaps in access to healthcare,

with lower use of preventive medications and less frequent hospitalisation for CVD. Improving access to quality healthcare is key to reducing deaths from cardiovascular and other diseases in low- and middle-income countries. Importantly, wider implementation of proven CVD prevention and treatment strategies in all countries, regardless of income level, could lead to further substantial reductions in CVD deaths."

To be effective, CVD prevention strategies rely on a clear understanding of the modifiable risk factors. This was the focus of a second analysis from PURE, presented in the same Hot Line Session by Professor Salim Yusuf (Population Health Research Institute, McMaster University, Hamilton, Canada), which was simultaneously published in *The Lancet*.<sup>1</sup> The impact of 14 commonly known, potentially modifiable risk factors on CVD and death was assessed globally and according to country income-level. The risk factors were environmental (e.g. air pollution), socioeconomic (e.g. education, depression), behavioural (e.g. tobacco smoking, diet, physical activity, alcohol, sodium consumption) and metabolic (e.g. lipid profile, blood pressure, obesity). The risk factor analysis involved 155,137 participants who did not have a prior history of vascular disease. During 9.5 years' follow-up, 10,234 deaths and 7,980 major CVD events occurred (approximately 50% each for strokes and heart attacks), most commonly in the poorest countries.

Globally, the greatest contributors to CVD were hypertension and high cholesterol. However, the relative importance of the major risk factors differed depending on income region. In high-income countries, the primary risk factors were elevated cholesterol followed by tobacco smoking, whereas they were hypertension and low education in middle-income countries, and hypertension and high cholesterol in low-



income countries. Household air pollution was the third largest contributor to CVD globally. "Air pollution, both indoor and outdoor, is associated with CVD, especially strokes, and overall mortality. Air pollution is a big problem in low-income countries, but much less so in high-income countries," says Prof. Yusuf.

The main contributor to all-cause mortality differed from CVD. The primary causes of mortality globally were low education, followed by tobacco smoking and poor grip strength.

**"The impact of low physical strength is a previously under-appreciated mortality risk factor."**

"Being physically active is still important to maintain health, but less so than improving muscle strength," says Prof. Yusuf.

The main cause of death in high-income countries was tobacco smoking, whereas in low-income countries it was poor diet.

However, there were some surprising insights as to what 'poor diet' entails, "Traditionally, we have thought of poor diets as those containing high levels of fat; however, our study showed that it is diets comprising inadequate amounts of fats and proteins, as well as low levels of fruits and vegetables, that are associated with increased mortality risk," explained Prof. Yusuf. "These findings suggest we need to rethink messaging around what constitutes healthy and unhealthy diets."

He finishes, "What we can conclude from our analysis is that the order and relevance of major risk factors for CVD and death vary in different parts of the world. As such, prevention strategies need to be tailored to the risk factors that are most important within each region."

1. Yusuf S, et al. *Lancet* 2019. doi/10.1016/S0140-6736(19)32008-2

**Replay the video and slides on ESC 365: [www.escardio.org/365](http://www.escardio.org/365)**

# Substantial LDL-C reductions with the siRNA, inclisiran: Results from ORION-11



**Prof. Kausik Ray**

**Subcutaneous administration of inclisiran, a small-interfering RNA (siRNA) directed against proprotein convertase subtilisin/kexin type 9 (PCSK9), was associated with substantial and sustained low-density lipoprotein cholesterol (LDL-C) reductions over the 18-month study.**

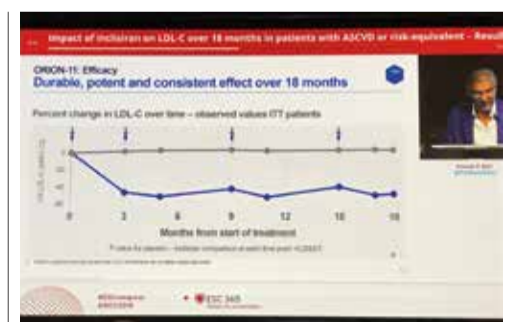
These findings from the ORION-11 trial were presented by principal investigator, Professor Kausik Ray (Imperial College London, London, UK) at a Late Breaking Science Session on Monday.

ORION-11 included 1,617 patients with atherosclerotic cardiovascular disease (ASCVD), or ASCVD risk equivalents, and elevated LDL-C despite maximally tolerated statins (with or without ezetimibe). Patients were randomised to a subcutaneous inclisiran sodium 300 mg injection, a second injection after three months and then injections every six months thereafter, or to placebo injections. Mean baseline LDL-C levels were 107 mg/dL in the inclisiran arm and 104 mg/dL in the placebo arm. Most patients (95%) were on a statin (95% on a high-intensity statin) and around 7% were on ezetimibe.

For the primary endpoint, placebo-adjusted LDL-C reductions of 54% ( $p < 0.00001$ ) were achieved with twice-yearly injections of inclisiran at 17 months. The rate of adverse events (AEs) was similar between the groups

and localised injection-site AEs—occurring in 4.7% of patients with inclisiran vs 0.5% with placebo—were mostly mild and transient. Further, the marked LDL-C reductions with inclisiran were not accompanied by any signs of liver, kidney, muscle or platelet toxicity. A similar proportion of inclisiran- and placebo-treated patients experienced serious AEs (22.3% vs 22.5%, respectively) or all-cause mortality (1.7% vs 1.9%, respectively). During the study, an exploratory cardiovascular endpoint (cardiac death, any signs or symptoms of cardiac arrest, non-fatal myocardial infarction or stroke) occurred in 7.8% of patients treated with inclisiran and 10.3% of patients with placebo.

Prof. Ray concludes, "The advantage of inclisiran is that it is given via twice-yearly subcutaneous injection, while the other



PCSK9-lowering agents are injected every two weeks or monthly. We believe this may lead to better adherence and, potentially, better outcomes."

ORION-9 is ongoing in patients with ASCVD, while the ORION-10 trial is being conducted in patients with heterozygous familial hypercholesterolaemia. Both will report in due course.

# Harnessing the power of genetic medicine: The new ESC Council on Cardiovascular Genomics



**Prof. Perry Elliott**

**Genetic testing is not the space-age phenomenon it was even 10 years ago.**

“Being able to genetically sequence individuals at low cost and the fact that the general public can, and do, access genetic testing via commercial companies has driven a revolution in genomic medicine,” says Professor Perry Elliott (University College London, London, UK). “As a consequence, we’re starting to learn an enormous amount about population genetics and predispositions to disease—it’s the ultimate opportunity for prevention. At the other end of the scale, there are individuals whose disease is caused primarily by genetic abnormalities. This is a whole new area of medicine, particularly when we remember

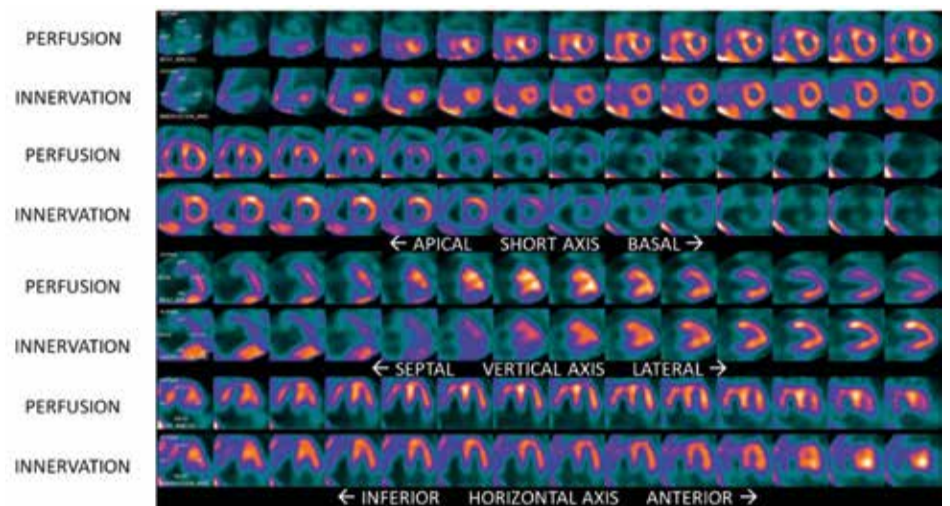
that most cardiovascular physicians have had no specific training in genetics since they were medical students.”

Forming the new Council on Cardiovascular Genomics, with Prof. Elliott as its Chair and Professor Heribert Schunkert as its Vice Chair, is the ESC’s way of making sure it keeps up with the pace of change. “The Council will use the expertise of the ESC’s Associations, Working Groups and Councils to promote training, education and interaction between the ESC and other stakeholders in genomics—including patient associations and policy makers—to try to improve the health of people with genetic diseases,” says Prof. Elliott. Why a Council and not a Working Group? “We think that a Council is the best way forward because it crosses all the strands within the ESC, including Associations, Working Groups and registries. In fact, every activity of the ESC is potentially relevant to genomics.”

Previously approved by the ESC Board, the Council was ratified by the General Assembly yesterday.

## What’s Your Diagnosis?

BROUGHT TO YOU BY THE EUROPEAN ASSOCIATION OF CARDIOVASCULAR IMAGING (EACVI)



Myocardial scintigraphy in a 45-year-old female with recent-onset dyspnoea at rest. Alessia Gimelli, Fondazione Toscana Gabriele Monasterio, Pisa, Italy



Answer on page 7



Our mission is to help save patients’ lives by addressing their cardio-renal-metabolic risks

We want to thank all our investigators who have worked tirelessly to make a difference for patients

Date of preparation: June 2019 – VPM ID: Z4-17827 – Expiry date: November 2019

# Latest updates from EORP in its 10th year

**The ESC's EURObservational Research Programme (EORP) celebrated a decade of experience yesterday with a symposium that provided an informative update on five of the programme's registries. Launched in 2009, the EORP was set up to give a clearer picture of global medical practice using observational data collected at more than 2,200 centres in over 80 countries, covering common and rare cardiovascular diseases, interventional techniques and prevention.**

Cardiac disease is the leading cause of maternal mortality. Co-Chair of the PeriPartum CardioMyopathy (PPCM) EORP Registry, Professor Karen Sliwa (University of Cape Town, Cape Town, South Africa), began by describing the disease presentation, management and 6-month outcomes of more than 700 women with newly diagnosed PPCM from 43 countries in Europe (33%), Africa (29%), Middle East (15%) and Asia-Pacific (22%) recruited over a 6-year period. She reported that patients from different regions had diverse presentation and outcomes, but despite overall good medical therapy, the adverse outcomes of mortality, rehospitalisation, ventricular recovery and thrombo-embolic events at 6 months remained unacceptably high.

Staying with pregnancy, the latest Registry Of Pregnancy and Cardiac Disease, ROPAC III, was set up to discover more about the outcomes of pregnant women who have existing heart disease. Yesterday, we heard from its Co-Chair, Professor Jolien Roos-Hesselink (Erasmus Medical Centre, Rotterdam, Netherlands). She reported that congenital heart disease was uncorrected in 1,059 out of 3,295 women studied from 53 countries. Over 40% of those with uncorrected congenital heart disease were from emerging countries, and importantly, these patients had significantly worse maternal, obstetric and foetal outcomes, with a higher rate of hospital admissions for cardiac events and intrauterine growth retardation. These findings suggest more needs to be done to improve the fate of these women and their children.

The symposium also featured a presentation from Professor Gilbert Habib (La Timone Hospital, Marseille, France), Chair of the European Infective Endocarditis Registry



(Euro-Endo), the largest registry on infective endocarditis ever performed. Euro-Endo provides a contemporary profile of patients admitted to hospital with infective endocarditis, their investigation, treatment and clinical outcomes, and also the influence of the 2015 ESC Clinical Practice Guidelines for the management of infective endocarditis on clinical practice. Studying patients from 2016 to 2018, Prof. Habib commented that "infective endocarditis remains a life-threatening disease in the 21st century with high morbidity and mortality." Of note, prognosis was found to be dismal when cardiac surgery is indicated but not performed.

The Chronic Ischemic Cardiovascular Disease (CICD) Registry is relatively new and involves more than 9,000 patients recruited from 22 countries from 2015 to 2018 who had either routine follow up after an acute coronary syndrome or elective revascularisation or established stable coronary disease. Its Chair, Professor Michel Komajda (Saint Joseph Hospital, Paris, France), described how clinical trial populations are not generally representative of patients seen in the outpatient community but that the CICD Registry population will reflect the whole spectrum of CICD seen in the outpatient setting. One-year follow-up is ongoing and the first results are eagerly awaited at the end of 2019.

Finally, there were two presentations providing an early look at what information may be gained from the Cardiomyopathy and Myocarditis Registry. Its Chair, Professor Alida Caforio (University of Padua, Padua, Italy), highlighted that the registry's myocarditis

Chair of the EORP Oversight Committee, Professor Chris P. Gale (University of Leeds, Leeds, UK), was delighted with the success of the session.

**"It is immensely gratifying that the EORP has been able to provide such important and unique insights for the international cardiovascular community on a range of rare and common cardiovascular diseases, and that we are discovering more and more every year."**

He has particular praise for all those involved in the Programme. "Powerful international registries are unique in providing the depth and breadth of knowledge required to get a good understanding of diseases and outcomes. One of the strengths of the EORP is its ability to collect highly valuable information at scale and we commend all the investigators, who give their time voluntarily, on their commitment and achievement."

**Replay the video and slides on ESC 365: [www.escardio.org/365](http://www.escardio.org/365)**





*"Becoming a FESC was the most honorable distinction I could receive. After all these years, belonging to such a renowned global scientific society still gives me a huge sense of pride and accomplishment"*

**Prof. Stavros Konstantinides, FESC**

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# The future of cardiology: Making it personal



**Prof.  
Hugo A. Katus**

**Professor Hugo A. Katus, Chair of Cardiology and Chief of Internal Medicine at the University Hospital, Heidelberg, Germany, is one of cardiology's pioneers. With a distinguished career spanning over 40 years, he is probably best known to many for his groundbreaking work on the cardiac-specific troponin T biomarker.**

So what does the man who changed the face of myocardial injury diagnosis and management think is the future of cardiology? "It's all about personalising medicine," he says. "We have learned a lot from evidence-based medicine and we have improved our treatment strategies. However, by now, there are new tools to characterise disease in individual patients, including molecular phenotyping and better imaging techniques, and this will only improve in the future, with the advent of increasingly sophisticated technologies, computational analysis and advanced

modelling. Despite this, cardiologists are still treating all patients in the same way as if, for example, heart failure is one disease. It is not. Cardiovascular diseases are complex conditions for which it is crucial to know not just the molecular causes but also how the disease interacts with other comorbidities in any particular patient," explains Prof. Katus.

**"Cardiologists need to learn how to use the novel tools at their disposal to find better ways to identify individual risk and to develop a more personalised approach to diagnostics and treatment."**

This search for a greater personalisation of patient management is the overarching theme of Prof. Katus' current research. "My group is continuing to work in gene therapy, looking at novel ways to very specifically target drugs to cardiomyocytes using viral vectors. We are also still doing quite a lot of basic research on the mechanisms of cardiomyopathy, including familial cardiomyopathy, and the genetic causes of this condition, together with clinical studies. This work is facilitated by the genotypical and phenotypical information

we have gained from a registry of more than 2,200 patients compiled at the recently established Institute for Cardiomyopathies Heidelberg." One of the research projects Prof. Katus is particularly enthusiastic about is digital cardiology. "We have created a Chair for Computational Cardiology within our department, with responsibility for overseeing the work on bioinformatic analyses, mainly on cardiomyocytes. We are also in the process of building a new research institute-Informatics for Life-that aims to bring together colleagues from cardiovascular medicine and specialists in information technology, computer modelling, mathematics and computational sciences. The research will focus on modelling disease, treatment and treatment targets and on analysing big data."

These different research pathways all lead to the same destination, the characterisation of cardiomyocytes and an improved understanding of cardiomyopathy. "The work on gene therapy is complementary to our biomarker research, because new treatment strategies rely on good diagnostics. And our digital cardiology programme centres on heart failure and cardiomyopathy. We are building on many years of experience working with cardiomyocytes, which of course is where

the findings on troponin originated from." As to whether troponin has revealed all its secrets, Prof. Katus is confident that it still has much more to offer. "At the start, we wanted to improve diagnostics for myocardial infarction. Troponin then turned out also to be a marker of myocardial injury and, in patients with stable coronary artery disease or modest heart failure, to be linked to the pathophysiology of heart disease and outcome. More recently, we have begun to observe that even subtle changes in troponin levels within the normal range relate to remodelling of the myocardial cells or vasculature. So the next era will be to prove how much can be predicted by troponin in populations of presumably healthy people."

On the challenge of achieving personalised management, Prof. Katus thinks that the cardiovascular community is ready. "Cardiovascular physicians have learned from oncology that there can be many different molecular pathways interacting in a disease and that more precise treatments are needed to target these different pathways. We are very much at the beginning of this journey, but that makes the next step all the more exciting, to build on evidence-based medicine to achieve more personalised and specific treatment approaches."

## My heart, your heart

# World Heart Day: Be a Heart Hero on 29 September 2019

Cardiovascular disease (CVD) is the leading cause of death and disability in the world, killing 17.9 million people a year—World Heart Day plays a crucial role in changing this.

World Heart Day is a vital global platform that the World Heart Federation (WHF), as well as its Members, patient groups and network of supporters, use to raise awareness and to encourage individuals, families, communities and governments to take action to reduce needless deaths.

This year on World Heart Day, WHF aims to create a global community of Heart Heroes who make a promise, to themselves and those they care about, to look after their hearts:

- For individuals: a promise to our families to cook and eat more healthily, and a promise to our children to do more exercise and help them to be more active, to say 'no' to smoking and help our loved ones to stop.
- For healthcare professionals: a promise to help our patients give up smoking or lower their cholesterol, and to understand their risks of CVD.
- For policymakers: a promise to support policies that support healthy hearts.

And as ever, the heart healthcare community has a huge role to play in making the day a success. Key actions for healthcare professionals include:

- Displaying World Heart Day posters, infographics and videos in waiting rooms
- Distributing the WHF's 'Protect your heart' fact sheet
- Identifying Heart Heroes—whether they are patients or professionals—and telling their stories
- Creating Heart Heroes posters for individual and institution websites
- Sharing World Heart Day resources and Heart Hero promises on social media networks

**Together we have the power to reduce the burden of, and premature deaths from, CVD, helping people everywhere to live longer, better, heart-healthy lives**

**Want to find out more?**

Visit the WHF Stand at the ESC Plaza and check out [www.worldheartday.org](http://www.worldheartday.org)

**Discover the World Heart Day app, a new way for employers to encourage their teams to become Heart Heroes**



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in partnership with



# Be part of the digital health revolution



**Prof. Martin Cowie**



**Prof. Panos Vardas**

**Having participated in Digital Health sessions at ESC Congress 2019, you may wonder what more could be gained from attending the ESC Digital Summit? "A lot!" says ESC Digital Health Committee Chair, Professor Martin Cowie (Imperial College London & Royal Brompton Hospital, London, UK). "We have had just a taster of what's to come here in Paris. The ESC is hosting its first Digital Summit in Tallinn in October to delve much deeper into the advances and the issues."**

He continues, "We want to bring those who are developing the new technology solutions together with the healthcare professionals who deliver them to enable a

better understanding of how we can provide more efficient and effective care to improve patient outcomes in partnership. Estonia was chosen as a venue as it's one of the most digitally connected countries in Europe and provides great examples about how we can reap the benefits of becoming more technologically advanced."

The ESC Digital Summit is the ideal location for those wanting to be more involved in the digital transformation and to exchange ideas on a range of developments that may change healthcare for the better, such as electronic medical records, remote monitoring, artificial intelligence decision support and even the design of new hospitals and new communities. With an international cross-sector faculty of experts—clinicians, ethicists, patient advocates, and representatives from technology, life sciences industry and the European Commission—it's going to be a very different format from usual ESC congresses, with TED-style talks, roundtable discussions, big debates and an almost continuous show-and-tell of technology.

**"The ESC Digital Summit is of paramount importance as medicine in general, and cardiovascular medicine in particular, is entering a fast-moving new era of**

**innovative digital technologies,"** explains Professor Panos Vardas (Hygeia Hospitals Group, Athens, Greece), ESC President 2012-2014 and Chief Strategy Officer of the ESC's European Heart Agency.

"In addition to the aspects that Prof. Cowie has mentioned and so wisely developed, three key highlights of the ESC Digital Summit stand out for me. Firstly, we will have the opportunity to discuss regulation. Take apps for example, are they classed as medical devices or not? How do we know if they have been submitted for any regulatory assessment? There is much uncertainty with regard to the regulation of new digital technologies and we need a forum to deliberate over issues," Prof. Vardas notes.

"Secondly, healthcare systems in Europe will need to look at the reimbursement of digital technologies and it is important that we are part of that conversation. Many new innovations are diagnostic services, but some healthcare systems do not have a favourable approach towards the reimbursement of diagnostics. If we can help to clear up reimbursement issues, then the whole digital health arena may move on more actively. Thirdly, from a technical point of view, inter-operability between different systems in Europe and different technologies must be considered. Such are

the opportunities and challenges, we hope the ESC Digital Summit will become an annual event!"

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• **ESC Digital Summit 2019**  
Saturday 5 - Sunday 6 October;  
Tallinn - Estonia

**ESC Digital Summit 2019**

**Key deadlines**  
Late registration  
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Last minute registration  
**26 September**  
Limited seats available

5 - 6 October, Tallinn, Estonia

[www.escardio.org/Digital-Summit](http://www.escardio.org/Digital-Summit) ESC

## TAVI does not have lower rates of infective endocarditis than SAVR but the risk of dying from infective endocarditis is higher

**The risk of infective endocarditis is the same with transcatheter aortic valve implantation (TAVI) and surgical aortic valve replacement (SAVR), but the risk of dying from infective endocarditis is greater with TAVI than with SAVR, reported Professor Laurent Fauchier (Tours Regional University Hospital, Tours, France) in a Late-Breaking Science presentation yesterday (Abstract 5844).**

TAVI is being used increasingly as an alternative to SAVR in patients with aortic stenosis, but its association with infective endocarditis, which carries significant morbidity and mortality, is not well defined. "To investigate the risks of infective endocarditis with TAVI and SAVR, and the prognosis, we conducted a nationwide study of patients with aortic stenosis from French hospitals," says Prof. Fauchier. "Because we wanted to compare the standard surgical approach with the usual percutaneous TAVI procedure, the study focussed on patients undergoing isolated SAVR or percutaneous TAVI and excluded patients undergoing more complex surgical procedures or surgical TAVI."

Around 47,000 patients with TAVI and 60,000 patients with SAVR, treated between 2010 and 2018, were included from the French administrative hospital-discharge database. "The TAVI patients were older and had more comorbidities," says Prof. Fauchier, "and



this is likely to be part of the reason they received TAVI instead of SAVR." To account for the difference in baseline characteristics across the groups, patients in each arm were propensity-score matched, resulting in around 16,000 patients in each group.

**The yearly rate of infective endocarditis was 1.9% with TAVI and 1.7% with SAVR (relative risk 1.09; 95% confidence interval [CI] 0.96-1.23; p=0.17).**

The group also sought to determine which TAVI patients were at a greater risk of developing infective endocarditis and the four main risk factors identified were: white race, male, anaemia and atrial fibrillation.

Among patients developing post-procedure infective endocarditis, those having undergone TAVI had a significantly higher risk of mortality than those undergoing SAVR (relative risk 1.32; 95% CI 1.08-1.60; p=0.005). "We did not analyse the reasons for this higher risk of death with TAVI, but we can make some suggestions," says Prof. Fauchier. "The most obvious possibility is that these are more frail patients, at least some of whom may have received TAVI due to SAVR contraindications. It is likely that their frailty may also have led to less aggressive treatment for infective endocarditis and earlier use of palliative care than in healthier patients."

In conclusion, Prof. Fauchier says, "We want to stress to cardiologists that, although the TAVI procedure and the subsequent hospital stay are shorter and may appear to be less risky than SAVR, the risk of infective endocarditis is no lower with TAVI than following surgery. It can be easy to forget TAVI is an invasive procedure that carries a risk of infection and patients who may be at a high risk of post-TAVI infective endocarditis should receive appropriate anti-infective prophylaxis, just as patients undergoing SAVR do."

**Replay the video and slides on ESC 365: [www.escardio.org/365](http://www.escardio.org/365)**

### Sessions of the day

<b>9:00</b>	<b>Nicosia</b> Congress Condensed - Basic Science
	<b>Amsterdam</b> Congress Condensed - General Cardiology
	<b>Paris</b> Congress Condensed - 2019 Clinical Practice Guidelines
<b>10:15</b>	<b>Paris</b> ESC Congress Highlights

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# Forging an ESC that is 'fit for the future'



**Prof. Barbara Casadei**

**It's been a very busy year for the ESC Board since they began their term in August 2018. President of the ESC, Professor Barbara Casadei (University of Oxford, Oxford, UK) describes important progress from the last 12 months and plans in the pipeline:**

"One of our first steps was to look at feedback received from the ESC C-Change (culture change) survey on what members expect from the ESC and what they would like us to provide. We agreed on a set of values to underpin our agenda for change and to promote cohesive integration between all parts and all members of the ESC, namely, being trustworthy, transparent, helpful and cooperative, pursuing excellence at all times, and ensuring that all our actions fit with the ESC's mission.

Based on these values and the need for a serious governance framework, we embarked on a revision of the ESC Statutes and continued the work of ESC Past-President, Jeroen Bax, on refining processes for Declarations of Interest. This issue is particularly important for those involved with ESC Clinical Practice Guidelines and the Guideline development process itself has also been revised. Changes to Task Forces include limiting the number of times a member can be involved, setting a cap on the external remuneration that Chairs can receive, using scouts to identify new Task

Force Chairs, including methodologists in all Task Forces, involving patients and also employing a formal voting system for main recommendations. We are very grateful to the ESC Committee for Practice Guidelines, its Chair, Professor Stephan Windecker, and the ESC staff for making all of this happen.

**Patients are at the heart of what the ESC stands for and we have made some important progress in working together with patients to advance the mission of the ESC.** Through our newly founded ESC Patient Forum, we have put plans in place to involve patients in ESC advocacy, education and communication activities (including patient-targeted materials) as well as in the development of ESC Guidelines. This has not been an easy process—training has been needed for both patients and Task Force members, but, thanks to the commitment of Professor Donna Fitzsimons, we have made excellent progress. All ESC Associations now have patient ambassadors involved in a range of diverse projects.

To peer review and prioritise ESC project and grants applications, we set up the ESC Research and Grants Committee. And as we read in the *Congress News* yesterday, some new ESC Research Grant categories have also been announced, reflecting the Society's wish to further promote research investment and young people's careers.

**Training and education are high on the list of what members want from the ESC, and we are very keen to invest in these areas.** As we have shown in the Global Exchange sessions, the Society wishes to provide more than traditional medical training to prepare the next generations for their future as empowered and successful professionals. It is likely that some of the major advances in medicine over the next 10-20 years will come from mathematicians, statisticians, data analysts, engineers, etc. and cardiologists will need the skills and language to be able to cooperate effectively with these partners. We want cardiologists to be at the frontline of research, not only asking the right questions but also having the know-how to answer them together with colleagues from the physical sciences. For this reason, the European Heart Academy has added a new postgraduate degree to their compendium, introducing a new MSc course in Clinical Trials together with the University of Oxford. We also have the newly



ratified Council on Cardiovascular Genomics (see page 3) and plan to run more Summer Schools on hot topics.

Convinced that new technologies will have a huge impact on the way we practise in the next 5-10 years, we want to capitalise on the potential of digital cardiology. We now have a Digital Health Committee, chaired by Professor Martin Cowie, who will be running the first ESC Digital Summit in Tallinn in October, a first step towards the serious involvement of our Society in this area.

**To avoid any complacency in our mission to reduce the burden of cardiovascular disease (CVD), the ESC has been stepping up its advocacy activities.** We have been consulting on revisions to the ICH Good Clinical Practice guidelines and also influencing research priorities in Europe via the ESC Atlas of Cardiology. Professor Martin Landray from the Advocacy Committee has recently been appointed to lead the development of new guidelines for clinical research together with the Wellcome Trust, The Gates Foundation and the African Academy of Sciences. While Professor Alan Fraser and the Regulatory Affairs Committee are continuing their very important work on medical devices. Another important step is our collaboration with the European Research Area Network on CVD (ERA-CVD) to develop the Strategic Research Agenda for CVD (SRA-CVD). This document aims to raise awareness of the huge burden and

impact of CVD and to contrast this starkly with the relatively low levels of investment in CVD research.

**The Board and I are passionate about improving the quality of cardiac care in Europe.** As we announced yesterday, the ESC Board has approved a pilot phase of the flagship project, EuroHeart (European Unified Registries On Heart Care Evaluation and Randomised Trials). Based on the scope of the databases and the healthcare improvements seen with continuous individual-patient registries in Sweden and the UK, we would like to examine the impact of extending these types of registries to other countries. A useful bonus of this approach is that the registries can serve as the infrastructure for running pragmatic randomised clinical trials, which both capitalise on the wealth of existing data generated by national health services and combat the increasing costs associated with conducting large-scale clinical trials.

In these first 12 months, we have taken some big strides towards meeting our goals and we are committed to progressing further in the coming year. We would like to thank all of the ESC Associations, Working Groups and Councils, our National Cardiac Societies and our members for their support and dedication, which ensure that the ESC remains at the forefront of cardiovascular science and care."

## Twitter gives you more!



**Doctor Roxana Mehran**  
(@Drroxmehran; Icahn School of Medicine at Mount Sinai, New York, NY, USA)

"Social media is my 'go to' source daily to keep updated on the events that I am interested in. I find #cardiotwitter a great way to share thoughts and communicate with my colleagues. Keep it up! #SoMe"

ESC Congress 2019 may soon be over but the conversations continue—follow @escardio for the latest news all year round!

**Professor Sarah Clarke**  
(@DrSarahClarke; Chair, ESC Media Committee)

"Thank you to our Social Media and Twitter Ambassadors, and all those who have kept us so well updated during the Congress!"



#ESCCongress #ESC Guidelines  
#ESCDigital #WCC2019

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## What's Your Diagnosis?

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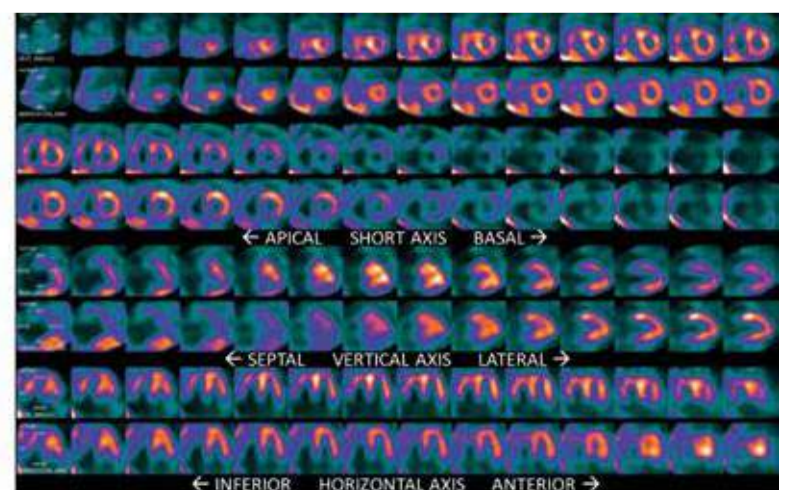
### Solution: Pulmonary hypertension

The patient was submitted to myocardial scintigraphy with <sup>99m</sup>Tc Tetrofosmin and <sup>123I</sup>MIBG for the evaluation of perfusion and innervation. The evaluation of the right ventricle, both in perfusion as well as in innervation images, is an indirect sign of pulmonary hypertension due to the increase of the thickness of the right ventricle free wall.

Alessia Gimelli, Fondazione Toscana Gabriele Monasterio, Pisa, Italy



PERFUSION  
INNervation  
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ESC Gold Medal Award winner

# Putting heart failure on the map



**Prof. Mariell Jessup**

**Professor Mariell Jessup, Chief Science and Medical Officer of the American Heart Association and an Emeritus Professor of Medicine at the University of Pennsylvania School of Medicine, PA, USA, is a leader in heart failure (HF) research, prevention and treatment, who has played an enormous part in putting HF on the cardiology subspecialty map in the US. A widely published author, she has for many years also been an integral member of the writing team for the American College of Cardiology/ American Heart Association clinical practice guidelines.**

As a medical student, Prof. Jessup was drawn to cardiology because she saw it was an area in which patients could be made to feel better very quickly. "A lot of changes were happening

at the time," she adds. "Scientists were identifying risk factors and understanding that by influencing these factors, a real impact could be made on decreasing morbidity and mortality. The dynamism of the field and the new therapies emerging made it a very exciting time to be a young cardiologist."

Prof. Jessup pinpoints the proudest moment of her career as being in 2004, when, after she and others had campaigned for many years, the American Board of Internal Medicine recognised advanced HF and transplant as a certified subspecialty of cardiology. "What it means is that there are now a set of mandatory training experiences and a knowledge base that have to be achieved before a cardiologist can take care of these desperately ill patients," she says. "As a result, patients are getting much better treatment." Prof. Jessup is also very proud of her work writing for clinical practice guidelines but thinks that more needs to be done to make sure that messages are translated into clinical practice. "I think that we have to get better at implementing the guidelines in our hospitals and clinics. All too often, the guidelines live a sanitised life

within a journal. We need to push for wider integration into clinical practice so that we can deliver the best care to the widest number of people." She thinks that the ESC's efforts to quantify guideline use is a move in the right direction—"You can't change what you can't measure"—and one that is to be applauded.

**One of the biggest challenges is the lack of proven therapies for HF with preserved ejection fraction (HFpEF).**

"We still don't have proven effective therapies for HFpEF and the community received another blow with the results from the PARAGON-HF trial, which, as we heard during ESC Congress 2019, delivered neutral results with sacubitril/valsartan," observes Prof. Jessup. Her hope is that future research will develop more specific therapies for this condition. And she takes comfort from the fact that promising treatments are emerging for other forms of HF, such as hypertrophic cardiomyopathy and cardiac amyloidosis. "However," she says, "in HF, we are nowhere near the precise, personalised

medicine everyone talks about as being the goal of management. This is where we need to go." She has great faith in the future and in scientists' determination to understand HF. "I have the great advantage of being able to look back over my career and see what we've achieved in this relatively short time. And that gives me hope to think that we'll see even better therapies in the upcoming decades."

Prof. Jessup is also keen to help address the gender imbalance in cardiology. "We need more women in cardiology. We know that patients feel more comfortable if there's somebody they can relate to and there's some suggestion that women feel more comfortable with—and are actually listened to in a more optimal way by—women cardiologists. And if half the population is female it isn't hard to see why we need to recruit more women into this field."

Expressing her honour at receiving the award from the ESC, Prof. Jessup concludes, "I'm extremely grateful that I've had the profound experience of witnessing what's happened in HF over the last 30 to 40 years and I look forward to seeing the next chapter unfold."

# Diabetes and heart failure after acute myocardial infarction: A deadly combination

**Diabetes significantly increases a patient's chance of developing heart failure (HF) after acute myocardial infarction (MI) and the combination of HF and diabetes triples the risk of death at five years.**

These findings from the FAST-MI study were reported yesterday by Professor Nicolas Danchin (AP-HP - European Hospital Georges Pompidou, Paris, France) in a Late-Breaking Science presentation.

"It is well documented that diabetes is associated with a higher risk of HF in patients with coronary artery disease (CAD)," says Prof. Danchin. "Conversely, we have known little about the impact of diabetes on the risk of HF in patients with acute MI. Given that this could have important treatment implications, we wanted to determine the prognostic value of diabetes on the risk of HF and on mortality in this patient group."

FAST-MI included patients from three nationwide French surveys, conducted in 2005, 2010 and 2015, following consecutively enrolled patients with non-fatal ST-elevation MI (STEMI) or non-STEMI. Follow-up was one year, with additional follow-up at five years for patients in the 2005 and 2010 surveys who survived for at least one year. Among the 12,473 patients, 24% had diabetes and these patients tended to be older (mean of five years) than those without diabetes. The team looked at endpoints in three populations with and without diabetes: 1) the development of HF during initial hospitalisation in patients

without a history of HF; 2) hospitalisation with HF during the first year after an MI in patients discharged from hospital alive with no HF during hospitalisation or at discharge; and 3) death at five years in patients who were alive at one year, according to the occurrence of non-fatal HF during the year following acute MI.

"Unadjusted data showed that the risk of developing HF during the initial hospitalisation was 29% among patients with diabetes and 15% among those without diabetes," says Prof. Danchin. Around 9,000 patients—2,000 with diabetes—did not die or develop HF during the initial hospitalisation. "Within this group, even after adjusting for confounders, such as age and sex, patients with diabetes had a 70% increased risk of being hospitalised for non-fatal HF in the year following MI (adjusted hazard ratio [HR] 1.70; p=0.002)," he continues. Diabetes also increased the risk of death or hospitalisation (adjusted HR 1.60; p<0.001), both for non-insulin-requiring (HR 1.35; p=0.013) and insulin-requiring (HR 2.09; p<0.001) patients.

Among patients who were alive for one year, diabetic patients who had been hospitalised for non-fatal HF during the first year after MI had double the risk of death by five years compared with diabetic patients who had not been hospitalised for HF (HR 2.02; p=0.014). The risks of 5-year mortality were 40% and 14.5%, respectively. Patients without diabetes who were hospitalised for HF during the first year also had a higher risk of death at five years (17.4%), but this was smaller than the risk in diabetic patients with HF.



**Developing HF requiring hospitalisation in the year following acute MI was associated with a higher absolute risk of death at five years in diabetic patients compared with non-diabetic patients (25.5% vs 10.4%).**

"Compared with the reference group of patients suffering an MI who did not have diabetes and did not develop HF within the first year, the development of HF in the first year with no concomitant diabetes increased the risk of 5-year mortality by 33%. The presence of diabetes without HF increased the risk by 44%. However, in patients with diabetes who developed HF during the first year, the risk of

5-year mortality was three-times that of the reference group," explains Prof. Danchin.

These data shed much-needed light on the impact of diabetes on HF after acute MI. "The results clearly show that patients with a history of diabetes are at a greater risk of developing HF, both at the acute stage and later on after their MI," says Prof. Danchin. "They also demonstrate that in patients with diabetes, non-fatal HF is strongly associated with an increased mid-term risk of mortality. This is a really important message and underlines the need for improved management strategies to avoid the development of HF in diabetic patients suffering an acute MI."

**Replay the video and slides on ESC 365: [www.escardio.org/365](http://www.escardio.org/365)**



# 2019 ESC Clinical Practice Guidelines on supraventricular tachycardia



**Prof. Christian Sticherling**



**Dr. Tom De Potter**

**Sixteen years after the last ESC guidelines covering the management of supraventricular tachycardia (SVT) were published, the new 2019 ESC Guidelines for the management of patients with supraventricular tachycardia<sup>1</sup> have been eagerly awaited. Guideline Review Coordinators, Professor Christian Sticherling (University Hospital Basel, Basel, Switzerland) and Doctor Tom De Potter (OLV Hospital, Aalst, Belgium), highlight what they consider to be the main changes and discuss what these changes mean for clinical practice.**

Prof. Sticherling explains why the ESC Guidelines on SVT are different to other ESC management guidelines. "Since the 2003 ESC Guidelines, there has been a dichotomous development in the invasive management of arrhythmias, with traditional paroxysmal SVT on the one hand and atrial fibrillation (AF) on the other. Most randomised clinical trials have been conducted in AF as it is the most common

supraventricular arrhythmia, with only a few trials in paroxysmal SVTs, which are rarer and mostly not life-threatening. This means that, compared with many of the other ESC guidelines, the scientific evidence supporting recommendations in the SVT management guidelines is less clear-cut."

By far the biggest change in management concerns drug treatment, says Dr. De Potter. "In 2003, the go-to treatment for arrhythmias was drugs. Since then, it has become clear that while drugs still have a place in the acute setting, they are generally not appropriate for long-term use. In fact, we now know that amiodarone and digoxin are potentially harmful for chronic treatment. A large number of the drugs cited in the previous guidelines are not featured in this version."

**Today, catheter ablation—which was emerging from its infancy in 2003—has a much more prominent place in the treatment of SVT.**

"Being associated with only a very small risk of complications, ablation should be offered as a first-line treatment option to most patients without contraindications," says Dr. De Potter. This recommendation is probably in keeping with current practice throughout Europe.

Highlighting what he sees as other major changes, Prof. Sticherling touches on the subject of asymptomatic pre-excitation. One in five patients with this condition will develop an arrhythmia related to their accessory pathway in follow-up. In the new guidelines,

asymptomatic pre-excitation has a dedicated algorithm for its screening and management. Non-invasive screening can be used for risk stratification but it has only modest predictive ability; invasive electrophysiology evaluation and ablation is recommended for those with high-risk occupations.

"Last but not least," continues Prof. Sticherling, "the new guidelines have separate sections considering management approaches for subgroups of patients with particular needs—such as adults with congenital heart disease, paediatric patients and patients who are pregnant—and they discuss SVT in the context of sport and driving restrictions." Dr. De Potter expands on the issue of SVT in pregnancy, which carries a higher risk of death. "If treatment is considered necessary because of maternal or child safety, drugs are not always the most suitable choice, particularly during the first trimester. Instead, catheter ablation should be considered at an expert centre with the appropriate facilities and technology." Alternatively, beta-1 selective blockers (except atenolol) or verapamil, in order of preference, are recommended for the prevention of SVT in patients without Wolff-Parkinson-White syndrome. Ideally, catheter ablation should be considered for patients with a history of symptomatic recurrent SVT who are planning to become pregnant at some point in the future.

Both Review Coordinators recognise the difficulty of developing guidelines in an area that has few large-scale trials and that has a wide audience, given that most cardiologists will be faced with SVT. "A lot of time and energy has gone into shaping the content to strike the right balance between a textbook overview and

a summary of the available evidence," says Dr. De Potter. Prof. Sticherling agrees, "The current guidelines give a comprehensive overview of the area and provide clinicians in all areas of cardiology with an important and long-overdue reference document for managing SVT."

1. 2019 ESC Guidelines for the management of patients with supraventricular tachycardia. Eur Heart J 2019. doi/10.1093/eurheartj/ehz467

**Replay the video and slides on ESC 365: [www.escardio.org/365](http://www.escardio.org/365)**

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## Faces in the crowd: What do you like most about ESC Congress?



**Amelita Brillantes**

Philippines

I've been attending ESC Congress for several years now. I find it incredibly useful to gain the latest information to share with my colleagues and students. The Hot Line and Late Breaking Science Sessions, and the discussions of the latest guidelines are particularly important for me, especially in the area of heart failure. The Congress is very well organised—it has been easy to find the sessions I want.



**Gudrun Veldre**

Estonia

One of the things I really enjoy about ESC Congress is being able to meet and talk to study investigators in the poster sessions. It is a fantastic opportunity to see the larger picture while also having direct contact with people in the same field as me. There are so many interesting sessions on at the same time, and it is great to be able to view the ones I can't attend on ESC 365.



**David Hong**

Republic of Korea

This is the first cardiology congress I have attended outside of Korea and I would definitely come again! It has been a great experience and I have learnt a lot of new things in a short space of time. I really like hearing the experts' interpretations and discussions of new data; they give me the confidence to pursue my research ideas.



**Fariborz Safarpour**

Islamic Republic of Iran

I think that the facilities at the Congress are really good. There is such a huge number of articles presented here, it's just a shame that there is not enough time to go to them all!



**Victor Stefan**

Germany

This is just my second time at ESC Congress. I really like the fact that it provides a wide diversity of complex topics in just a few days. It is also a really good opportunity to interact and exchange ideas with people from all over the world.



**Katarzyna Czerwinska**

Poland

The Congress is an incredible opportunity for the young generation, at the beginning of their careers, when they need educational support, to gain knowledge and to make connections for their future educational opportunities. Later on, when you are more established and want to form collaborations to help put your research ideas into practice, it is ideal for creating a network of international contacts.

# 2019 ESC Clinical Practice Guidelines on acute pulmonary embolism



**Prof. Nazzareno Galié**



**Dr. Simon Gibbs**

**“Venous thromboembolism is the third most common cause of death from cardiovascular disease, accounting for an estimated half-a-million deaths in Europe each year,” says Guideline Review Coordinator, Professor Nazzareno Galié (University of Bologna, Bologna, Italy), explaining why the 2019 ESC Guidelines for the diagnosis and management of acute pulmonary embolism<sup>1</sup> (PE) are so relevant to clinical practice.**

In the new ESC Guidelines, developed in collaboration with the European Respiratory Society, diagnosis has been aided by adjusting plasma D-dimer cut-off levels for age and clinical probability of PE. According to fellow Guideline Review Coordinator, Doctor Simon Gibbs (Imperial College London, London, UK), “The refining

of the clinical probability of PE will help to reduce the overuse of diagnostic tests—including repeated exposure of patients to ionising radiation. We also know more about radiation dose and there is a table to show how much radiation is delivered to the patient during each imaging test.”

Dr. Gibbs also thinks that the 2019 ESC Guidelines are a lot more precise in describing disease severity than the previous ones. “We now have a clearer definition of haemodynamic instability which delineates acute high-risk PE, encompassing at least one of cardiac arrest, obstructive shock and persistent hypotension. The composite description makes it much easier to distinguish between the two types of patient—those with and those without haemodynamic stability—and to manage treatment accordingly.”

Prof. Galié continues, “Patients considered not to be high risk can be stratified into intermediate-high-risk, intermediate-low-risk, or low-risk groups, using clinical, imaging and laboratory variables. The low-risk patients can be considered for early discharge.” Dr. Gibbs picks up this thread, “The new guidelines give clearer guidance regarding triage for early discharge of these low-risk patients—including ascertaining that the risk of early PE-related death or serious complications is low, there is no serious comorbidity or aggravating condition which requires hospitalisation, and that the patient has care support and

easy access to medical care—so that we are getting a better understanding of who can be discharged safely from hospital early.”

The new ESC Guidelines restate the importance of thrombolytic therapy, which tends to be underused. As Prof. Galié explains, “Patients with PE are often elderly and with comorbidities; doctors may be cautious about the risk of cerebral haemorrhage with thrombolytic agents. However, the benefits of thrombolysis in avoiding PE-related mortality in haemodynamically unstable patients (acute high-risk PE) far outweigh its risks of causing cerebral haemorrhage in the absence of absolute contraindications, which are listed in the 2019 ESC Guidelines.” In intermediate- and low-risk patients requiring acute-phase oral anticoagulants, the 2019 ESC Guidelines now specifically recommend novel oral anticoagulants as first-line treatment for patients without contraindications. “This is simpler for patients to manage and reduces the need for so many repeat clinic visits,” says Dr. Gibbs. “New to the guidelines is a section on chronic treatment, which includes guidance on the duration of anticoagulant therapy, from a minimum of 3 months up to a maximum of a lifetime, depending on the risk of recurrence,” Prof. Galié says. “The risk of recurrence has to be balanced alongside the risk of bleeding, and tables for each offer easy risk comparison to guide treatment decisions.”

“Follow-up of patients is something that physicians are keen to do but that has

generally been managed using a whole range of protocols,” says Dr. Gibbs. “With the new guidelines, we now have some recommendations to ensure consistency across hospitals in different countries. Follow-up of patients who suffered a PE several months ago can be conducted easily using an algorithm detailing the best course of action based on the presence of dyspnoea and/or functional limitation.”

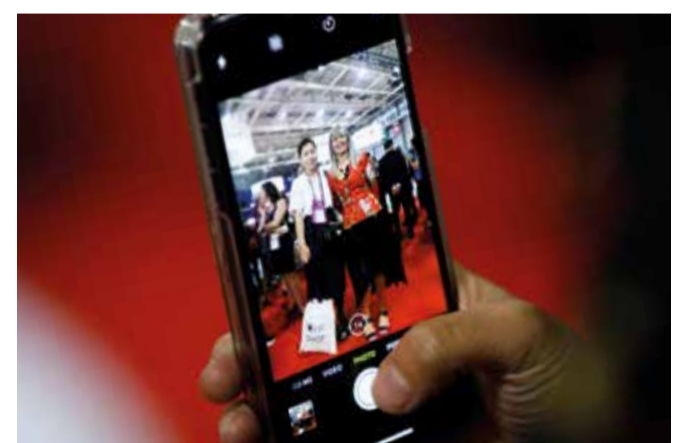
Finally, the 2019 ESC Guidelines give specific recommendations for managing PE in patients with cancer, a growing population given the increase in cancer survivorship, and also suspected PE in pregnancy, where avoidance of foetal and mammary gland radiation exposure are key aims.

“Even though there have been no important new randomised trials in PE since the previous guidelines, the recommendations that have been put together for this edition will lead to improvements across all aspects of care, from diagnosis and risk stratification to the treatment of PE in all different populations,” concludes Prof. Galié.

1. 2019 ESC Guidelines for the diagnosis and management of acute pulmonary embolism. Eur Heart J 2019. doi/10.1093/eurheartj/ehz405

**Replay the video and slides on ESC 365: [www.escardio.org/365](http://www.escardio.org/365)**

## ESC Congress 2019 in pictures



# From Paris to Amsterdam...our journey to better cardiovascular health continues!

**Five science-packed days! ESC Congress 2019 together with World Congress of Cardiology has been a whirlwind of cutting-edge science that promises to improve patient care. It has also been able to shine a brighter light on global cardiovascular health by delving into differences and disparities among health systems and highlighting where we can help to narrow healthcare gaps to reduce the burden of cardiovascular disease everywhere.**

"Although the roots of the ESC and its annual Congress are European, the Society has worked hard to have a global reach and we think this has been especially successful here in Paris," says ESC's Chief Executive Officer, Ms. Isabel Bardinet. "Once again, we have attracted more than 33,000 dedicated, healthcare professionals from all over the world."

The ESC has always had a particular affinity to Paris. It was prior to the first World Congress of Cardiology in this city on 2 September 1950, when the ESC was

originally founded by 14 National Cardiac Societies. Today, more than 150 countries are involved in ESC activities through its 57 National Cardiac Societies and 47 Affiliated Cardiac Societies.

Next September, the ESC will proudly celebrate its 70th anniversary at ESC Congress 2020. One of its founding members was the Netherlands Society of Cardiology, so it is only fitting that Amsterdam will be the host venue for this event. Easily accessible and close to cultural hotspots, the RAI Amsterdam Convention Centre has played host to some of Europe's largest and most successful international conferences.

The spotlight for ESC Congress 2020 will shift to 'The Cutting Edge of Cardiology'. The aim, once again, is to share the very latest strategies and innovative solutions so that more physicians, in more countries, can achieve the same levels of knowledge and standards of care. As seen at ESC's Congress in Paris, at its various subspecialties congresses throughout the year, and at the pioneering ESC Digital Summit next month in Tallinn, the ESC is focussing increasingly on technological advances and how they can help people the world over lead longer, healthier lives.



In addition to holding its annual Congress in Amsterdam next year, the ESC will also stage another public event. It is determined to raise public awareness of cardiovascular disease, leaving a lasting legacy in the host city long after the congress has finished. The ESC will also hold another Heart Healthy Cities Round Table in Amsterdam, and then again in London at ESC Congress 2021.

"We leave Paris with some very important global lessons learned," says Ms. Bardinet. "We hope you will continue this important journey with us."

#### **Don't miss!**

- **ESC Congress 2020**  
29 August - 2 September 2020;  
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## ESC Congress Amsterdam 2020

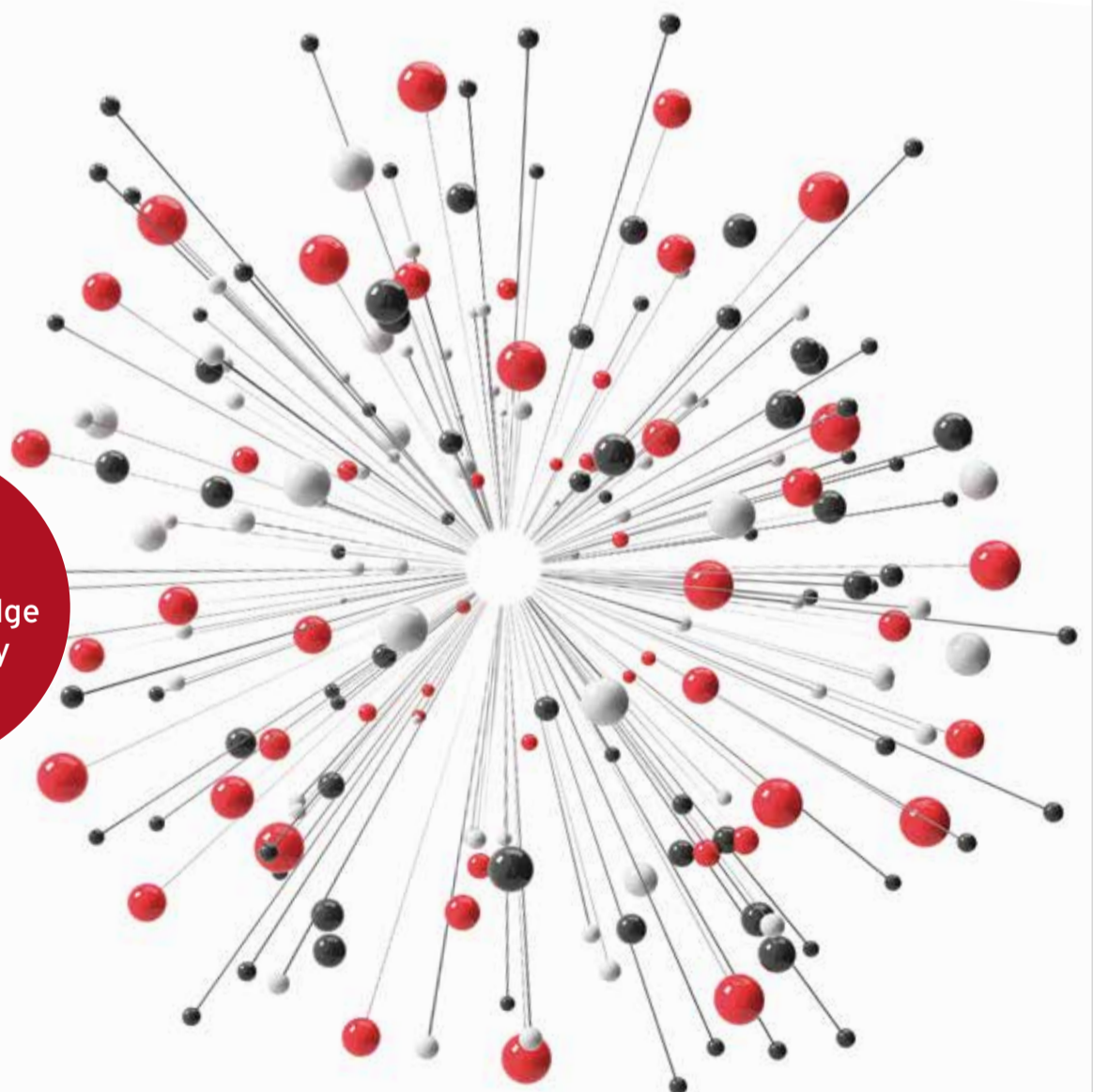
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## Thank you from *Congress News*

As the Congress closes, we would like to thank everyone who contributed to the five daily editions of *Congress News*. We hope we have kept you informed about some of the many highlights of this year's diverse programme and provided updates on the latest ESC activities and resources.



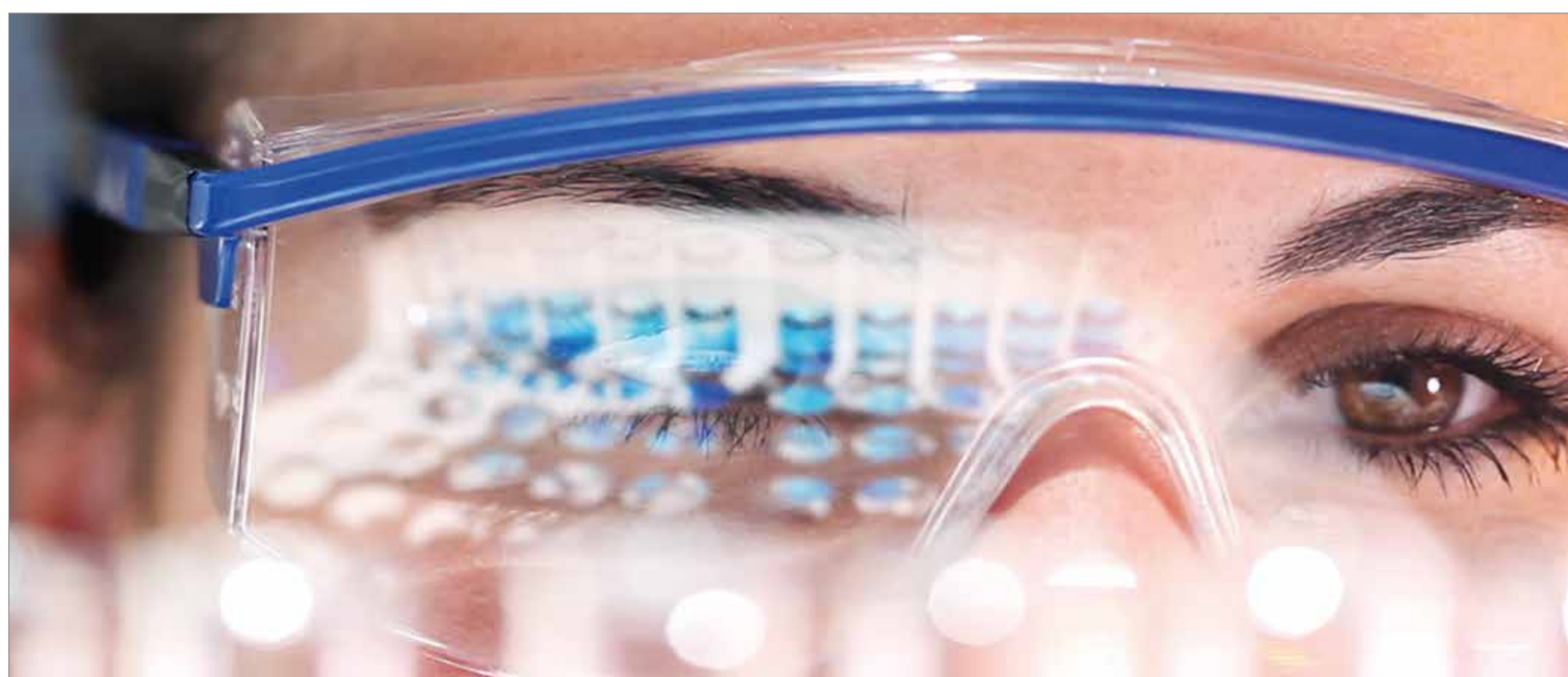
Professor Sanjay Sharma, Professor Sarah Clarke (Chair, ESC Media Committee) and Associate Professor Carol Ann Remme.

The newspaper was produced with the support of TMC Communications and we would like to thank every member of the team for their energy and the long hours that went into the production.

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