

Pan-African Society of Cardiology

An overview of the Society's important activities in 2014



Pan-African Society of Cardiology (PASCAR) is an organization (established in 1981) of physicians from across Africa involved in the prevention and treatment of cardiovascular disease. The founders of PASCAR were concerned by the lack of progress in the diagnosis and effective treatment of cardiovascular disease across Africa.¹ Africa does offer unique challenges, but with achievable objectives and a long-term strategy, a positive impact can be made on the disease.

Pan-African Society of Cardiology has recently appointed George Nel to assist the society with an office and management infrastructure. This allows the Governing Council to focus on identifying key issues, brainstorm novel solutions, and design appropriate programmes to combat cardiovascular disease across the continent. The PASCAR office focuses on liaising with stakeholders and on the successful implementation of priority programmes. The number of additional resources required is determined by the specific programme and they are funded by third parties with mutual interest. Pan-African Society of Cardiology is forming working relationships with other organizations and departments with a similar mandate and focus in Africa. For more information contact PASCAR at george@medsoc.co.za or www.pascar.org.

It is important to understand the unique challenges faced in Africa and, as such, the PASCAR Governing Council consists of a core group of committed individuals with extraordinary knowledge of the African cardiovascular environment and passion to make a difference.



Pan-African Society of Cardiology National Council (Dakar, Senegal, May 2013): left to right—Back row: **Dr Anastase Dzudie, Cameroon, Assistant Secretary General (Central Africa); Dr Harun Otieno, Kenya, Assistant Secretary General (East); Dr Saad Subahi, Sudan, Vice-Resident (North); Prof. Elijah Ogola, Kenya, Vice-President (East); Dr Awad Mohamed, Sudan, Assistant Secretary General (North); Prof. Serigne Ba, Senegal, Vice-President (West); Prof. Samuel Kingue, Cameroon, Vice-President (Central); Prof. Johan Brink, South Africa, Assistant Secretary General (South). Front row: Prof. Toure Ali Ibrahim, Niger, Assistant Secretary General (West); Dr Ana-Olga Mocumbi, Mozambique, Vice-President (South); Prof.**

Bongani Mayosi, South Africa, President; Prof. Karen Sliwa-Hahnle, South Africa, Treasurer; Dr Benedict Anisuba, Nigeria, Secretary General. Not in picture—Prof. Paul Brink, South Africa (Editor—Cardiovascular Journal of Africa)²

In addition to our geographically aligned structures (North, East, South, and West Africa), PASCAR Task Forces bring together representatives from key cardiovascular subspecialties such as interventional cardiology and lifestyle risk modification, and allied catheterization laboratory professionals. Prof. Bongani Mayosi has stated that PASCAR will actively engage with Africa north of the Sahara, to become an active contributing region in PASCAR. This has culminated in the PASCAR 2015 Congress being awarded to the Tunisian Society of Cardiology and Cardiovascular Surgery. The PASCAR 2015 programme will address all aspects of cardiology that are relevant to Africa.

Pan-African Society of Cardiology is currently involved in the following programmes.

‘Cardiac Pacing Services for every African country’

There are three potential barriers to the establishment of an effective cardiac pacing service in Africa

- cost of pacemakers;
- lack of insertion facilities; and
- absence of clinical expertise.³

The high cost of new pacemaker devices may be overcome by the reuse of pacemakers, a practice that has been demonstrated to be safe and cost-effective.⁴ Pacing requires the availability of X-ray equipment with fluoroscopic capabilities and aseptic conditions, which are available in many hospitals in sub-Saharan Africa and in almost all academic centres.

It is not necessary for the procedure to be carried out in a dedicated cardiac catheterization laboratory, a facility that is not available in the majority of African countries.

Finally, the lack of trained doctors in pacemaker implantation and non-physician clinicians (or nurses) in supportive care is the only significant barrier to the establishment of cardiac pacing in many countries in the region.

African Fellowships in Cardiac Pacing and Clinical Cardiology address the lack of expertise through a 6-month intensive training programme at high-volume pacemaker implanting and training centres such as University of Cape Town, South Africa. Some North African countries could also provide such training facilities. The first unit under this programme should be operational in Sierra Leone from mid-2015.

'PASCAR brings together Medical Experts from across Africa to Forge a Path to Eliminate Rheumatic Heart Disease'



PASCAR Governing Council, Zambezi Sun meeting Livingstone, Zambia, 31 January 2014 left to right: Dr Ana Olga Mocumbi (Vice-Pres. South), Prof Karen Sliwa-Hahnle (Treas.), Dr Anastase Dzudie (Deputy Sec-Gen. Central), Mrs Faiza Pearce (PASCAR Sec.), Dr Saad Subahi (Vice-Pres. North), Prof Paul Brink (Editor-in-Chief, Cardiovascular Journal of Africa), Prof Bongani Mayosi (Pres.), Dr Awad Mohamed (Deputy Sec-Gen. North), Prof Sam Omokhodion (Immediate Past Sec-Gen.), Mr George Nel (looking to his right) (Exec. Officer), and Prof Elijah Ogola (Deputy Pres. East).

A historic assembly took place in early 2014 at the Zambezi Sun, Livingstone, Zambia, bringing together Africa's leading experts in rheumatic heart disease (RHD) to design a roadmap for the control and elimination of the disease in Africa.⁵ The second Pan-African 'Stop Rheumatic Heart Disease ASAP in Africa' Continental Congress was held under the auspices of the PASCAR and in partnership with Novartis, and included cardiac specialists from >30 countries in Africa as well as representatives from the World Health Organization (WHO) and the World Heart Federation (WHF).

The Minister of Health of Zambia gave the opening address, welcoming the 50 delegates from over 30 countries across Africa, from Cape Town to Cairo.

Prof. Bongani Mayosi, a leading advocate for patients with RHD globally stated, 'This is the time to scale up our efforts if we are to realise the elimination of rheumatic heart disease in Africa in our lifetime'.

'Despite its high prevalence, for a very long time, rheumatic heart disease has been a neglected disease in Africa, but this is slowly changing', said Dr John Musuku, paediatric cardiologist at the University Teaching Hospital in Lusaka, Zambia. Under the auspices of PASCAR and in partnership with Novartis, Dr Musuku is leading a broad effort in Zambia to measure the prevalence of RHD in school children and to form a new electronic patient registry. The

other delegates are working in all areas of Africa, leading important new research in RHD as well as the genetic epidemiology of RHD—the REMEDY study and the Genetics of Rheumatic Heart Disease Network (RHDGen) represent the start of a new era in ground-breaking RHD research in Africa.

Pan-African Society of Cardiology Task Force on Hypertension

Pan-African Society of Cardiology embarked on a process to write, disseminate, implement, and monitor a very practical guideline for the management of hypertension (HTN) in Africa. Hypertension is the most common single-risk factor for cardiovascular-related events and deaths worldwide. Over the last years, a substantial number of publications have highlighted the growing evidence of HTN as a largely underdiagnosed and undertreated disease associated with poverty and ignorance, leading to complications such as stroke, renal disease, and heart failure.

Recently, under the patronage of the Senegalese President, PASCAR as the leading continental organization, has engaged and adopted the 'The 10 Best Buys' to combat heart disease, diabetes, and stroke in Africa with HTN management as the first priority. Pan-African Society of Cardiology has taken a real measurement of the condition and the challenges but also the opportunities that exist in developing a credible preventive programme with the following elements:

- Clinical and very practical guidelines that answer specific questions related to HTN in Africa.
- Implementation plan with the use of the World Health Organisation-Africa policy.
- Monitoring, evaluation, and regular revision.

Pan-African Society of Cardiology Educational Collaboration in Catheter Laboratories of Africa

The South African Allied Group Society, ISCAP (The Interventional Society of Cath Lab Allied Professionals) donated a complimentary copy of their recently published Cardiac Catheterisation Training Manual to every cath lab unit in Africa. This will be the first of hopefully much more collaboration in this cardiac environment.

Pan-African Society of Cardiology Task Force on Nutrition and Cardiovascular Diseases

This new initiative was launched in June 2014 and will consist of a situational analysis on Nutrition and CVD in Africa as well as stakeholders' consultation and systematic reviews of published data (including data meta-analysis). The task force will issue stakeholders consultation report, peer-reviewed publications, guidelines on

lifestyle management to reduce CVD risk in Africa and a Handbook on Nutrition and CVD in Africa. Evidence will be gathered from a cross-country project and a multi-country school-based programme, with eventual communication through the PASCAR website, social media, and a satellite symposium in Tunisia, September 2015.

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First evidence for shockless atrial fibrillation treatment

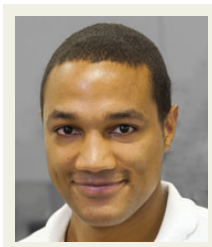
Cardiac optogenetics achieve defibrillation without the pain of electric shocks

The first evidence for a shockless treatment for atrial fibrillation (AF) was presented at Frontiers in CardioVascular Biology 2014 in Barcelona, Spain.

Electric shocks are the quickest way to bring AF patients back to normal sinus rhythm and prevent symptoms and complications. But shocks are very painful and require anaesthesia, which comes with its own possible adverse effects.

Atrial fibrillation usually progresses from a paroxysmal form, in which episodes of AF last from several minutes up to 7 days, to a persistent and eventually a chronic form. People with the latter are in AF 24 h a day, 7 days a week, and shock treatment no longer works. Dr Brian O. Bingen, first author, said: 'AF causes structural changes to the atrium which make patients more prone to subsequent induction of AF. That's another reason to get patients back into sinus rhythm as soon as possible'.

The researchers devised a method of shockless defibrillation. They used optogenetics to genetically insert depolarizing ion channels into the heart that can be activated by light.



Dr Bingen said: 'The theory was that we could just turn a light switch on and depolarise the entire myocardium without needing a shock. In theory, the patient could be given an implantable device with a mesh of light emitting diodes (LEDs) and when AF occurs you turn the light on and the AF stops'.

During arrhythmias there is subepicardial activity, but the heart is a complex three-dimensional structure and it is only possible to directly observe the epicardium. To see how their method worked subepicardially, the researchers developed two-dimensional (2D) hearts. They isolated cardiac muscle cells from the rat atrium, replanted them in a culture dish and allowed the cells to form intercellular connections, creating a 2D heart.

Atrial fibrillation was induced in 31 of these 2D hearts. The researchers used a lentivirus to insert a gene into the 2D hearts called calcium-translocating channelrhodopsin, which is a light-sensitive depolarizing channel.

Dr Bingen said: 'Then it was just a matter of switching on the light and seeing what happened. We found that in all 31 of these 2D hearts we were able to achieve the 2D equivalent of cardioversion into sinus rhythm. The mechanism we saw was slightly different than the normal defibrillation but was equally effective'.

He continued: 'We now have to test our method in the 3D setting. In that scenario we won't be able to see the defibrillating mechanism in as much detail, but we hope that it will be possible to terminate AF in the complete heart. We will also test other types of light or energy sources that penetrate the body more deeply and could be applied externally, avoiding the need for an implanted device'.

Dr Bingen concluded: 'This is the first evidence of a shockless defibrillation. Our method of using optogenetics to defibrillate by light is completely painless and looks promising, but more research is needed before it can be applied in patients'.

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