1. This review article provides a broad overview of the novelties in cardiology in 2018. Advances in interventional cardiology and cardiovascular prevention, heart failure, electrophysiology and non-invasive cardiovascular imaging have provided important new insights in the pathophysiology, diagnosis and treatment of ischemic and valvular heart disease, heart failure, rhythm disorders and cardiomyopathies. This article provides an overview of the most relevant articles published in 2018.

2. The authors reviewed clinical trials presented at major cardiology conferences during 2017 including the American College of Cardiology, European Association for Percutaneous Cardiovascular Interventions, European Society of Cardiology, European Association for the Study of Diabetes, Transcatheter Cardiovascular Therapeutics, and the American Heart Association. Selection criteria were trials with a broad relevance to the cardiology community and those with potential to change current practice.

3. A total of 75 key cardiology clinical trials were identified for inclusion. New interventional and structural cardiology data include left main bifurcation treatment strategy, multivessel disease management in cardiogenic shock, drug-eluting balloons for in-stent restenosis, instantaneous wave-free physiological assessment, new-generation stents (COMBO, Orsiro), transcatheter aortic valve implantation, and closure devices.

4. New preventative cardiology data include trials of liraglutide, empagliflozin, PCSK9 inhibitors (evolocumab and bococizumab), inclisiran, and anacetrapib. Antiplatelet data include the role of uninterrupted aspirin therapy during non-cardiac surgery and dual antiplatelet therapy following coronary artery bypass grafting. New data are also included from fields of heart failure (levosimendan, spironolactone), atrial fibrillation (apixaban in DC cardioversion), cardiac devices (closed loop stimulation pacing for neuromediated syncope), and electrophysiology (catheter ablation for atrial fibrillation).

5. The Core Cardiology Training Symposium (COCATS) standards are recommendations endorsed by the American College of Cardiology to assist cardiology fellowship program training directors in curricular design. In addition to seeking COCATS standards as evidence of proficiency in cardiovascular skills, Fellows-In-Training (FITs) often pursue board certifications to maximize their hiring potential.

6. In 2012, the American College of Cardiology's (ACC) Adult Congenital and Pediatric Cardiology Council established a program to develop quality metrics to guide ambulatory practices for pediatric cardiology. The council chose five areas on which to focus their efforts; chest pain, Kawasaki Disease, tetralogy of Fallot, transposition of the great arteries after arterial switch, and infection prevention.

7. The infection prevention metrics team consisted of 12 members from 11 institutions in North America. The group agreed to work on specific infection prevention topics including antibiotic prophylaxis for endocarditis, rheumatic fever, and asplenia/hyposplenism; influenza vaccination and respiratory syncytial virus prophylaxis (palivizumab); preoperative methods to reduce intraoperative infections; vaccinations after cardiopulmonary bypass; hand hygiene; and testing to identify splenic function in patients with heterotaxy.

8. The committee chose eight metrics to submit to the ACC Quality Metric Expert Panel for review. Ultimately, metrics regarding hand hygiene and influenza vaccination recommendation for patients did not pass the RAND analysis. Both endocarditis prophylaxis metrics and the RSV/palivizumab metric passed the RAND analysis but fell out during the open comment period.

9. Good clinical practices and safety conditions are better defined regarding the structure, location, material, staff competency, as well as convention with hospital structures. The diagnosis of coronary artery disease remains the principal indication for a stress test. Interpretation of the results is crucial - it must be multivariate and provide either a low, intermediate or strong probability of the existence of coronary lesions, taking into account the studied population (risk factors, age, sex and symptoms).

10. Several new indications for a stress test have been defined for the assessment of cardiac pathologies. With such indications, the use of gas expiration measurements is highly recommended in order to provide a precise prognosis for all the various cardiac pathologies : congenital, ischemic, valvular, cardiomyopathy, congestive heart failure, rhythm and conduction disorders, pacemaker fine-tuning, or pulmonary hypertension. Indications for stress tests and contraindications are defined according to different population subgroups.

11. As usual, numerous papers published in 2017 contributed to optimize the management of patients in all clinical cardiologic fields. It is of course impossible to summarize them all in such an article. Subjects and papers were thus selected if they were thought to be particularly important for non-cardiologist physicians, especially general practitioners. The authors would also like to take the opportunity of this article to honor the memory of Pr Daniel Wagner who unfortunately passed away after less than six months at the head of our Cardiology Department.

12. Mechanical cardiac assist had progressively changed. Emergency depends of INTERMACS classification. The clinical evolution of patients under cardiac assist determines patient follow up: long duration mechanical support (and not "destination therapy"), recovery and weaning or planned heart transplantation. In case of emergency, extracorporeal membrane oxygenation allowed to stabilize patients and oriented them to one of these options.

13. Platelet P2YI2 receptor inhibition with clopidogrel, prasugrel or ticagrelor plays a key role to prevent recurrent ischaemic events after percutaneous coronary intervention in acute coronary syndromes or elective settings. The degree of platelet inhibition depends on the antiplatelet medication used and is influenced by clinical and genetic factors. A concept of therapeutic window exists.

14. Traditional means to stay current in cardiology have been subscription journals and both local and national symposiums. More recently, social media has facilitated a two-way interactive sharing of information. With the use of social media platforms including Twitter, case discussions, educational quizzes and procedural demonstrations can now be shared in a conversation with unlimited parties and represents an excellent interactive educational modality for the global interventional community to share procedural techniques, share opinions and stay current on topics in interventional cardiology.

15. Cardiology therefore plays a central role in the clarification of coughs. In cardiology, a cough is most frequently caused by acute and chronic heart failure resulting from different types of cardiomyopathies. It can, however, be caused by other pathologies as well. The connection between cough and cardiac arrhythmia is interesting, although cough can be cause, consequence and therapy.

16. Cardiovascular diseases are counted among the most prevalent morbidities in western nations and they still are the leading cause of death in these countries. An increasingly aging population will confront all physicians with a growing number of patients having cardiovascular dysfunction. Anesthesiologists need to be familiar with upcoming new cardiologic procedures to provide hemodynamic stability during these procedures.

17. Cardiovascular diseases are often combined with severe comorbidities such as renal failure, chronic obstructive pulmonary disease, pulmonal hypertension and cerebrovascular damage. So anesthesia in this cohort requires experience, especially when during direct manipulation of the cardiac system such as in cardiologic procedures. Additionally, a new therapeutic option has been developed for valvular dysfunction recently, which involves the anesthesiologist in a new treatment of a high-risk population.

18. The clinical picture of myocardial ischemia accompanying allergic reactions is defined in the cardiologic literature as Kounis syndrome (KS) or allergic angina/myocardial infarction. In PubMed, a search for "Kounis syndrome", "allergic angina" or "allergic myocardial infarction" retrieves more than 100 results (among case reports, case series and reviews), most of which are published in cardiology/internal medicine/emergency medicine journals.

19. In allergologic literature, heart involvement during anaphylactic reactions is well documented, but Kounis syndrome is hardly mentioned. Single case reports and small case series of angina triggered by allergic reactions have been reported for many years, and involvement of histamine and others mast cell mediators in the pathogenesis of coronary spasm has long been hypothesized, but the existence of an allergic acute coronary syndrome (ACS) is still questioned in the allergologic scientific community.

20. Putative mechanisms of an allergic acute coronary syndrome include coronary spasm or heart tissue-resident mast cell activation (precipitating coronary spasm or inducing plaque rupture and coronary or stent thrombosis) due to systemic increase of allergic mediators, or heart tissue-resident mast cell activation by local stimuli. Indeed, the pathogenic mechanism of an ACS after an allergic insult might be related to direct effects of mast cell mediators on the myocardium and the atherosclerotic plaque, or to exacerbation of preexisting disease by the hemodynamic stress of the acute allergic/anaphylactic reaction

21. Sudden cardiac death (SCD) is one of the most common causes of death in developed countries. In Italy, an annual incidence of 0.7 per 1000 inhabitants per year can be estimated. SCD represents the main cause of sudden death in children, adolescents and young adults and often occurs in young and previously asymptomatic patients. This issue has acquired even greater relevance since implantable cardioverter-defibrillators have proved to be highly effective in preventing sudden death in high-risk subjects.

22. Autopsy findings of young SCD victims include inherited cardiac disorders with a defined morphologic substrate but also hearts without any identifiable structural abnormalities (sudden unexplained death). The potential heritability of the underlying disorder makes surviving relatives at risk of sudden death. A cardiological workup in these families may allow identification of cardiac disease and may unmask affected surviving relatives in whom the disease had remained unrecognized.

23. To assess the cardiological status of patients with long-term lupus nephritis we evaluated 30 patients (mean age 43 +/- 11 years) with lupus nephritis lasting from at least 10 years (mean 15 +/- 5 years). At the time of cardiological evaluation the mean plasma creatinine was 132.6 +/- 11.1 mumol/l and in 28 patients lupus had been quiescent for at least 3 years. Fourteen patients (46.6%) showed one or more cardiac abnormalities: 10 had valvular lesions (1 verrucous endocarditis, 9 thickening and stiffness of one or more valves)--4 patients had regional myocardial akinesis as a consequence of a previous cardiac infarct (one had valvular abnormalities too).

24. One patient had pulmonary hypertension probably secondary to pulmonary vasculitis. No patient had pericarditis. These cardiac abnormalities proved to be statistically correlated with the number of ARA criteria ($p = 0.045$), the number of lupus flares ($p = 0.004$), the serum levels of cholesterol ($p = 0.04$) and of triglycerides ($p = 0.025$) as well as the duration of hypercholesterolemia ($p = 0.005$) and of hypertriglyceridemia ($p = 0.007$). In conclusion, in patients with long-term lupus nephritis cardiac lesions are frequent.