



**ESC**

European Society  
of Cardiology

# **ESC CONGRESS 2019**

## **TOPICS FOR ABSTRACT SUBMISSION**

# Topics

At the time of abstract submission, the submitter must select one single topic to index the abstract.

It is important to carefully select the best matching topic as this choice will determine under which area the abstract will be reviewed and graded.

Therefore, submitters should consider all potential options available before selecting the submission topic.

The topic list is organised by main topics and several layers of subtopics to maximize precision. Appropriately choosing the main topic and first subheadings is more important than the lowest layers of subtopics.

If the abstract is accepted, presenters will be required to select 3 additional topics/keywords. These are important to optimise indexing of the abstract in the programme and in the ESC 365 congress library. This serves to optimise search results and enhance visibility of the research.

**B - IMAGING**

**C - ARRHYTHMIAS AND DEVICE THERAPY**

**D - HEART FAILURE**

**E - CORONARY ARTERY DISEASE, ACUTE CORONARY SYNDROMES, ACUTE CARDIAC CARE**

**F - VALVULAR, MYOCARDIAL, PERICARDIAL, PULMONARY, CONGENITAL HEART DISEASE**

**G - AORTIC DISEASE, PERIPHERAL VASCULAR DISEASE, STROKE**

**H - INTERVENTIONAL CARDIOLOGY AND CARDIOVASCULAR SURGERY**

**I - HYPERTENSION**

**J - PREVENTIVE CARDIOLOGY**

**K - CARDIOVASCULAR DISEASE IN SPECIAL POPULATIONS**

**L - CARDIOVASCULAR PHARMACOLOGY**

**M - CARDIOVASCULAR NURSING**

**N - E-CARDIOLOGY/DIGITAL HEALTH, PUBLIC HEALTH, HEALTH ECONOMICS, RESEARCH METHODOLOGY**

**O - BASIC SCIENCE**

## **B - IMAGING**

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### **3 - Imaging**

#### **3.1 - Echocardiography**

- 3.1.1 - Echocardiography: Technology
- 3.1.2 - Echocardiography: Dimensions, Volumes and Mass
- 3.1.3 - Echocardiography: Systolic and Diastolic Function
- 3.1.4 - Echocardiography: Valve Disease
- 3.1.5 - Echocardiography: Masses and Sources of Emboli
- 3.1.6 - Doppler Echocardiography
- 3.1.7 - Transesophageal Echocardiography
- 3.1.8 - Contrast Echocardiography
- 3.1.9 - Tissue Doppler, Speckle Tracking and Strain Imaging
- 3.1.10 - Stress Echocardiography
- 3.1.11 - 3D Echocardiography
- 3.1.12 - Intraoperative and Interventional Echocardiography

#### **3.2 - Computed Tomography**

- 3.2.1 - Computed Tomography: Technology
- 3.2.2 - Computed Tomography: Dimensions, Volumes and Mass
- 3.2.3 - Computed Tomography: Systolic and Diastolic Function
- 3.2.4 - Computed Tomography: Valve Disease
- 3.2.5 - Coronary Calcium Score
- 3.2.6 - Coronary CT Angiography
- 3.2.7 - Computed Tomography: Plaque Imaging
- 3.2.8 - CT Myocardial Perfusion
- 3.2.9 - CT Imaging of Structural Heart Disease
- 3.2.10 - CT-derived FFR
- 3.2.11 - Computed Tomography: Extracardiac Findings
- 3.2.12 - Computed Tomography: Radiation Exposure

#### **3.3 - Cardiac Magnetic Resonance**

- 3.3.1 - Cardiac Magnetic Resonance: Physics and Technology
- 3.3.2 - Cardiac Magnetic Resonance: Dimensions, Volumes and Mass
- 3.3.3 - Cardiac Magnetic Resonance: Systolic and Diastolic Function
- 3.3.4 - Cardiac Magnetic Resonance: Valve Disease
- 3.3.5 - Cardiac Magnetic Resonance: Deformation Imaging
- 3.3.6 - Cardiac Magnetic Resonance: Flow Imaging
- 3.3.7 - Stress CMR
- 3.3.8 - Late Gadolinium Enhancement and Viability
- 3.3.9 - T1 and T2 Mapping, T2\*
- 3.3.10 - Cardiac Magnetic Resonance: Coronary Imaging
- 3.3.11 - Cardiac Magnetic Resonance: Plaque Imaging
- 3.3.12 - Cardiac Magnetic Resonance: Angiography
- 3.3.13 - Cardiac Magnetic Resonance: Myocardium
- 3.3.14 - Cardiac Magnetic Resonance: Pericardium
- 3.3.15 - Cardiac Magnetic Resonance: Cardiac Masses
- 3.3.16 - Cardiac Magnetic Resonance: Safety

#### **3.4 - Nuclear Imaging**

- 3.4.1 - Nuclear Imaging: Technology and Tracers
- 3.4.2 - Single Photon Emission Computed Tomography (SPECT)
  - 3.4.2.1 - Single Photon Emission Computed Tomography (SPECT) - Dimensions, Volumes and Mass
  - 3.4.2.2 - Single Photon Emission Computed Tomography (SPECT) - Systolic and Diastolic Function
  - 3.4.2.3 - Single Photon Emission Computed Tomography (SPECT) - Ischaemia and Viability
  - 3.4.2.4 - Single Photon Emission Computed Tomography (SPECT) - Inflammation
- 3.4.3 - Positron Emission Tomography (PET)
  - 3.4.3.1 - Positron Emission Tomography (PET) - Dimensions, Volumes and Mass
  - 3.4.3.2 - Positron Emission Tomography (PET) - Systolic and Diastolic Function
  - 3.4.3.3 - Positron Emission Tomography (PET) - Ischaemia and Viability
  - 3.4.3.4 - Positron Emission Tomography (PET) - Inflammation
- 3.4.4 - Nuclear Imaging: Dimensions, Volumes and Mass
- 3.4.5 - Nuclear Imaging: Systolic and Diastolic Function
- 3.4.6 - Molecular Imaging

#### **3.5 - Hybrid and Fusion Imaging**

### **3.6 - Cross-Modality and Multi-Modality Imaging Topics**

- 3.6.1 - Imaging: Cardiac Dimensions, Volume, and Mass
- 3.6.2 - Imaging: Systolic and Diastolic Function
- 3.6.3 - Imaging: Valve Disease
- 3.6.4 - Imaging: Arrhythmias
- 3.6.5 - Imaging: Heart Failure
- 3.6.6 - Imaging: Coronary Artery Disease
- 3.6.7 - Imaging: Acute Coronary Syndromes
- 3.6.8 - Imaging: Myocardial Disease
- 3.6.9 - Imaging: Pericardial Disease
- 3.6.10 - Imaging: Congenital Heart Disease
- 3.6.11 - Imaging: Aortic Disease
- 3.6.12 - Imaging: Peripheral Vascular Disease
- 3.6.13 - Imaging: Prevention and Rehabilitation

## **C - ARRHYTHMIAS AND DEVICE THERAPY**

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### **4 - Arrhythmias, General**

#### **4.1 - Arrhythmias, General – Pathophysiology and Mechanisms**

- 4.1.1 - Cellular Mechanisms of Arrhythmias
- 4.1.2 - Genetic Aspects of Arrhythmias
- 4.1.3 - Arrhythmias, General – Pathophysiology and Mechanisms: Ion Channel Disorders

#### **4.2 - Arrhythmias, General – Epidemiology, Prognosis, Outcome**

#### **4.3 - Arrhythmias, General – Diagnostic Methods**

- 4.3.1 - Arrhythmias, General – Diagnostic Methods: Electrocardiography
- 4.3.2 - Arrhythmias, General – Diagnostic Methods: Signal-averaged ECG
- 4.3.3 - Arrhythmias, General – Diagnostic Methods: Holter Monitoring and Event Recorder
- 4.3.4 - Arrhythmias, General – Diagnostic Methods: Non-invasive Diagnostic Methods
- 4.3.5 - Arrhythmias, General: Invasive Diagnostic Methods

#### **4.4 - Arrhythmias, General – Treatment**

- 4.4.1 - Arrhythmias, General: Lifestyle Modification
- 4.4.2 - Antiarrhythmic Drug Treatment
- 4.4.3 - Cardioversion and Defibrillation
- 4.4.4 - Catheter Ablation of Arrhythmias

#### **4.5 - Arrhythmias, General – Prevention**

#### **4.6 - Arrhythmias, General – Clinical**

### **5 - Atrial Fibrillation**

#### **5.1 - Atrial Fibrillation - Pathophysiology and Mechanisms**

- 5.1.1 - Cellular Electrophysiology
- 5.1.2 - Cell-cell Interactions
- 5.1.3 - Disease Modeling in Atrial Fibrillation
- 5.1.4 - Genetic Causes of Atrial Fibrillation
  - 5.1.4.1 - Monogenic diseases causing Atrial Fibrillation
  - 5.1.4.2 - Common Gene Variants in Atrial Fibrillation
- 5.1.5 - Atrial Stressors Causing Atrial Fibrillation
  - 5.1.5.1 - Ischemia and Metabolic Imbalance
  - 5.1.5.2 - Heart Failure and Left Ventricular Dysfunction
  - 5.1.5.3 - Atrial Stressors Causing Atrial Fibrillation: Valvular Heart Disease
  - 5.1.5.4 - Sleep Disordered Breathing
  - 5.1.5.5 - Obesity and Diabetes
  - 5.1.5.6 - Autonomic Dysfunction
  - 5.1.5.7 - Sports and Atrial Fibrillation
- 5.1.6 - Defining Types of Atrial Fibrillation
- 5.1.7 - Mechanisms for Stroke in Atrial Fibrillation
- 5.1.8 - Mechanisms for Heart Failure and Cardiac Complications in Atrial Fibrillation

#### **5.2 - Atrial Fibrillation - Epidemiology, Prognosis, Outcome**

- 5.2.1 - Prevalence and Incidence of Atrial Fibrillation
- 5.2.2 - Stroke in Atrial Fibrillation
- 5.2.3 - Heart Failure in Atrial Fibrillation
- 5.2.4 - Sudden Death in Patients with Atrial Fibrillation
- 5.2.5 - Cognitive Function and Autonomy in Patients with Atrial Fibrillation

#### **5.3 - Atrial Fibrillation - Diagnostic Methods**

## **5.4 - Atrial Fibrillation - Treatment**

### 5.4.1 - Acute Management of Atrial Fibrillation

#### 5.4.1.1 - Acute Rate Control and Cardioversion

#### 5.4.1.2 - Patient Flow

### 5.4.2 - Rate Control

#### 5.4.2.1 - Rate Control Targets

#### 5.4.2.2 - Medical Therapy for Rate Control

#### 5.4.2.3 - AV Nodal Ablation and Pacemaker Therapy

#### 5.4.2.4 - Outcome of Rate Control Therapy

### 5.4.3 - Rhythm Control, Cardioversion

#### 5.4.3.1 - Pharmacological Cardioversion of Atrial Fibrillation

##### 5.4.3.1.1 - Pharmacological Cardioversion of Atrial Fibrillation: Treatment Pathway and Technique

##### 5.4.3.1.2 - Pharmacological Cardioversion of Atrial Fibrillation: Outcomes and Complications

#### 5.4.3.2 - Electrical Cardioversion of Atrial Fibrillation

##### 5.4.3.2.1 - Electrical Cardioversion of Atrial Fibrillation: Treatment Pathway and Technique

##### 5.4.3.2.2 - Electrical Cardioversion of Atrial Fibrillation: Outcomes and Complications

#### 5.4.3.3 - Stroke Prevention in Cardioversion

##### 5.4.3.3.1 - Stroke Prevention in Cardioversion: Oral Anticoagulation

##### 5.4.3.3.2 - TOE guidance

### 5.4.4 - Rhythm Control, Antiarrhythmic Drugs

#### 5.4.4.1 - Indications and Patient Selection

#### 5.4.4.2 - Episodic Drug Therapy

#### 5.4.4.3 - Long Term Drug Therapy

#### 5.4.4.4 - Rhythm Control, Antiarrhythmic Drugs: Outcomes and Complications

### 5.4.5 - Rhythm Control, Catheter Ablation

#### 5.4.5.1 - Rhythm Control, Catheter Ablation: Indications

#### 5.4.5.2 - Rhythm Control, Catheter Ablation: Techniques and Technology

#### 5.4.5.3 - Rhythm Control, Catheter Ablation: Outcomes and Complications

### 5.4.6 - Rhythm Control, Atrial Fibrillation Surgery

#### 5.4.6.1 - Rhythm Control, Atrial Fibrillation Surgery: Indications

#### 5.4.6.2 - Rhythm Control, Atrial Fibrillation Surgery: Techniques and Technology

#### 5.4.6.3 - Rhythm Control, Atrial Fibrillation Surgery: Outcomes and Complications

### 5.4.7 - Rhythm Control, Hybrid Therapy

#### 5.4.7.1 - Atrial Fibrillation Heart Team

#### 5.4.7.2 - Combination of Drug Therapy and Ablation

#### 5.4.7.3 - Combination of Pacing and Drug Therapy/Ablation

## **5.5 - Atrial Fibrillation - Stroke Prevention**

### 5.5.1 - Oral Anticoagulation

#### 5.5.1.1 - Oral Anticoagulation: Indications

#### 5.5.1.2 - Long-term Treatment, Adherence, Attrition

#### 5.5.1.3 - Oral Anticoagulant Drugs

#### 5.5.1.4 - Bleeding Complications

### 5.5.2 - Left Atrial Appendage Occlusion

#### 5.5.2.1 - Left Atrial Appendage Occlusion: Indications

#### 5.5.2.2 - Left Atrial Appendage Occlusion: Technology and Implantation Technique

#### 5.5.2.3 - Left Atrial Appendage Occlusion: Outcomes and Complications

## **5.6 - Atrial Fibrillation - Stroke Treatment**

### 5.6.1 - Atrial Fibrillation - Stroke Treatment: Imaging

### 5.6.2 - Atrial Fibrillation - Stroke Treatment: Acute Therapy

### 5.6.3 - Novel Therapies for Stroke in Atrial Fibrillation

### 5.6.4 - Atrial Fibrillation Heart Teams for Stroke Prevention

## **5.7 - Atrial Fibrillation - Prevention**

## **5.8 - Atrial Fibrillation - Clinical**

## **6 - Supraventricular Tachycardia (non-AF)**

### **6.1 - Supraventricular Tachycardia (non-AF) - Pathophysiology and Mechanisms**

#### 6.1.1 - Cellular Mechanisms

#### 6.1.2 - Genetic Aspects

### **6.2 - Supraventricular Tachycardia (non-AF) - Epidemiology, Prognosis, Outcome**

### **6.3 - Supraventricular Tachycardia (non-AF) - Diagnostic Methods**

### **6.4 - Supraventricular Tachycardia (non-AF) - Treatment**

### **6.5 - Supraventricular Tachycardia (non-AF) - Prevention**

### **6.6 - Supraventricular Tachycardia (non-AF) - Clinical**

## **7 - Syncope and Bradycardia**

## **7.1 - Syncope and Bradycardia - Pathophysiology and Mechanisms**

- 7.1.1 - Bradycardia - Sinus Node Dysfunction
- 7.1.2 - Bradycardia - AV-Block
- 7.1.3 - Tachycardia
- 7.1.4 - Non-arrhythmogenic Mechanisms of Syncope

## **7.2 - Syncope and Bradycardia - Epidemiology, Prognosis, Outcome**

- 7.2.1 - Syncope and Bradycardia - Epidemiology, Prognosis, Outcome: Epidemiology
- 7.2.2 - Syncope and Bradycardia - Epidemiology, Prognosis, Outcome: Prognosis and Risk Stratification

## **7.3 - Syncope and Bradycardia - Diagnostic Methods**

- 7.3.1 - Ambulatory ECG Monitoring and Loop Recorders
- 7.3.2 - Provocation Tests, Assessment of Autonomous Nervous System
- 7.3.3 - Detection of Underlying Heart Disease

## **7.4 - Syncope and Bradycardia - Treatment**

- 7.4.1 - Drug Treatment
- 7.4.2 - Pacemaker Therapy

## **7.5 - Syncope and Bradycardia - Prevention**

## **7.6 - Syncope and Bradycardia - Clinical**

## **8 - Ventricular Arrhythmias and Sudden Cardiac Death (SCD)**

### **8.1 - Ventricular Arrhythmias and SCD - Pathophysiology and Mechanisms**

- 8.1.1 - Coronary Artery Disease
- 8.1.2 - Dilated Cardiomyopathy and Non-ischemic Heart Failure
- 8.1.3 - Ventricular Arrhythmias and SCD - Pathophysiology and Mechanisms: Arrhythmogenic Right Ventricular Cardiomyopathy
- 8.1.4 - Hypertrophic Cardiomyopathy
- 8.1.5 - Ventricular Arrhythmias and SCD - Pathophysiology and Mechanisms: Ion Channel Disorders
- 8.1.6 - Long QT Syndrome
- 8.1.7 - Brugada Syndrome
- 8.1.8 - Gene Variants

### **8.2 - Ventricular Arrhythmias and SCD - Epidemiology, Prognosis, Outcome**

- 8.2.1 - Ventricular Arrhythmias and SCD - Epidemiology, Prognosis, Outcome: Epidemiology
- 8.2.2 - Ventricular Arrhythmias and SCD - Epidemiology, Prognosis, Outcome: Risk Factors and Risk Assessment

### **8.3 - Ventricular Arrhythmias and SCD - Diagnostic Methods**

### **8.4 - Ventricular Arrhythmias and SCD - Treatment**

- 8.4.1 - Management of Out of Hospital Cardiac Arrest
  - 8.4.1.1 - CPR
  - 8.4.1.2 - First Responder Help Systems
  - 8.4.1.3 - Management of Out of Hospital Cardiac Arrest: Automated External Defibrillators
  - 8.4.1.4 - Acute in-Hospital Management
- 8.4.2 - Drug Treatment of Ventricular Arrhythmias
- 8.4.3 - Ablation of Ventricular Arrhythmias
- 8.4.4 - Device Treatment of Ventricular Arrhythmias and SCD
  - 8.4.4.1 - Wearable Defibrillators
  - 8.4.4.2 - Device Treatment of Ventricular Arrhythmias and SCD: Automated External Defibrillators
  - 8.4.4.3 - Implantable Defibrillators (ICD)

### **8.5 - Ventricular Arrhythmias and SCD - Prevention**

### **8.6 - Ventricular Arrhythmias and SCD - Clinical**

## **9 - Device Therapy**

### **9.1 - Antibradycardia Pacing**

### **9.2 - Implantable Cardioverter / Defibrillator**

### **9.3 - Cardiac Resynchronization Therapy**

### **9.4 - Home and Remote Patient Monitoring**

### **9.5 - Device Complications and Lead Extraction**

## **D - HEART FAILURE**

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## **10 - Chronic Heart Failure**

### **10.1 - Chronic Heart Failure – Pathophysiology and Mechanisms**

- 10.1.1 - Chronic Heart Failure - Pathophysiology
- 10.1.2 - Experimental Heart Failure
- 10.1.3 - Cardiotoxicity of Drugs and Other Therapies
- 10.1.4 - Hemodynamics of Heart Failure
- 10.1.5 - Systolic Ventricular Dysfunction
- 10.1.6 - Diastolic Ventricular Dysfunction
- 10.1.7 - Ventricular Remodeling

- 10.1.8 - Heart Failure with Reduced Ejection Fraction
- 10.1.9 - Heart Failure with Mid-range Ejection Fraction
- 10.1.10 - Heart Failure with Preserved Ejection Fraction

## **10.2 - Chronic Heart Failure – Epidemiology, Prognosis, Outcome**

### **10.3 - Chronic Heart Failure – Diagnostic Methods**

- 10.3.1 - Chronic Heart Failure – Diagnostic Methods: Biomarkers
- 10.3.2 - Chronic Heart Failure – Diagnostic Methods: Imaging
  - 10.3.2.1 - Chronic Heart Failure – Diagnostic Methods: Imaging - Echocardiography
  - 10.3.2.2 - Chronic Heart Failure – Diagnostic Methods: Imaging - Cardiac Magnetic Resonance

### **10.4 - Chronic Heart Failure – Treatment**

- 10.4.1 - Chronic Heart Failure: Lifestyle Modification
- 10.4.2 - Chronic Heart Failure: Pharmacotherapy
- 10.4.3 - Chronic Heart Failure: Rehabilitation
- 10.4.4 - Implantable Cardioverter Defibrillator (ICD)
- 10.4.5 - Resynchronization Therapy
- 10.4.6 - Ventricular Assist Devices
- 10.4.7 - Heart Transplantation
- 10.4.8 - Devices for Autonomic Modulation
- 10.4.9 - Chronic Heart Failure: Multidisciplinary Interventions

### **10.5 - Chronic Heart Failure – Prevention**

### **10.6 - Chronic Heart Failure - Clinical**

- 10.6.1 - Chronic Heart Failure: Peripheral Circulation, Metabolism, Skeletal Muscle
- 10.6.2 - Chronic Heart Failure: Comorbidities
  - 10.6.2.1 - Chronic Heart Failure: Comorbidities - Anemia/Iron Deficiency
  - 10.6.2.2 - Chronic Heart Failure: Comorbidities - Cancer
  - 10.6.2.3 - Chronic Heart Failure: Comorbidities - Cerebrovascular disease
  - 10.6.2.4 - Chronic Heart Failure: Comorbidities - Chronic Kidney Disease
  - 10.6.2.5 - Chronic Heart Failure: Comorbidities - Chronic Obstructive Pulmonary Disease
  - 10.6.2.6 - Chronic Heart Failure: Comorbidities - Dementia/Depression
  - 10.6.2.7 - Chronic Heart Failure: Comorbidities - Diabetes
  - 10.6.2.8 - Chronic Heart Failure: Comorbidities - Frailty
  - 10.6.2.9 - Chronic Heart Failure: Comorbidities - Muscular Dystrophy
  - 10.6.2.10 - Chronic Heart Failure: Comorbidities - Sleep Apnea
  - 10.6.2.11 - Chronic Heart Failure: Comorbidities - Thyroid disease

## **11 - Acute Heart Failure**

### **11.1 - Acute Heart Failure – Pathophysiology and Mechanisms**

- 11.1.1 - Acute Heart Failure: Hemodynamics

### **11.2 - Acute Heart Failure – Epidemiology, Prognosis, Outcome**

### **11.3 - Acute Heart Failure – Diagnostic Methods**

- 11.3.1 - Acute Heart Failure: Biomarkers
- 11.3.2 - Acute Heart Failure: Imaging
- 11.3.3 - Acute Heart Failure: Invasive Hemodynamic Monitoring

### **11.4 - Acute Heart Failure– Treatment**

- 11.4.1 - Acute Heart Failure: Pharmacotherapy
- 11.4.2 - Acute Heart Failure: Non-pharmacological Treatment
  - 11.4.2.1 - Circulatory Support
  - 11.4.2.2 - Renal Replacement Therapy
- 11.4.3 - Acute Heart Failure: Multidisciplinary Interventions

### **11.5 - Acute Heart Failure– Prevention**

### **11.6 - Acute Heart Failure - Clinical**

## **E - CORONARY ARTERY DISEASE, ACUTE CORONARY SYNDROMES, ACUTE CARDIAC CARE**

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### **12 - Coronary Artery Disease (Chronic)**

#### **12.1 - Coronary Artery Disease – Pathophysiology and Mechanisms**

- 12.1.1 - Chronic Ischemia
- 12.1.2 - Coronary Circulation, Flow, and Flow Reserve
- 12.1.3 - Coronary Microcirculation and Collaterals
- 12.1.4 - Coronary Artery Disease: Inflammation and Immunity
- 12.1.5 - Hibernation

#### **12.2 - Coronary Artery Disease – Epidemiology, Prognosis, Outcome**

#### **12.3 - Coronary Artery Disease – Diagnostic Methods**

- 12.3.1 - Coronary Artery Disease: Noninvasive Diagnostic Methods
- 12.3.2 - Coronary Artery Disease: Angiography, Invasive Imaging, FFR

## **12.4 - Coronary Artery Disease – Treatment**

- 12.4.1 - Coronary Artery Disease: Lifestyle Modification
- 12.4.2 - Coronary Artery Disease: Non-pharmacological Treatment
- 12.4.3 - Coronary Artery Disease: Pharmacotherapy
- 12.4.4 - Coronary Artery Disease: Treatment, Revascularization
  - 12.4.4.1 - Percutaneous Coronary Intervention
  - 12.4.4.2 - Coronary Artery Disease: Treatment, Revascularization: Bypass Surgery

## **12.5 - Coronary Artery Disease – Prevention**

### **12.6 - Coronary Artery Disease - Clinical**

- 12.6.1 - Coronary Artery Disease and Comorbidities

## **12.7 - Non-Atherosclerotic Coronary Abnormalities**

## **13 - Acute Coronary Syndromes**

### **13.1 - Acute Coronary Syndromes – Pathophysiology and Mechanisms**

- 13.1.1 - Acute Myocardial Ischemia
- 13.1.2 - Thrombosis, Platelets, and Coagulation
- 13.1.3 - Acute Coronary Syndromes: Inflammation
- 13.1.4 - Vulnerable Plaque
- 13.1.5 - Vasospasm
- 13.1.6 - Reperfusion and Reperfusion Injury
- 13.1.7 - Left Ventricular Remodeling
- 13.1.8 - No Reflow

### **13.2 - Acute Coronary Syndromes – Epidemiology, Prognosis, Outcome**

### **13.3 - Acute Coronary Syndromes – Diagnostic Methods**

- 13.3.1 - Acute Coronary Syndromes: Biomarkers
- 13.3.2 - Acute Coronary Syndromes: Non-invasive Imaging
- 13.3.3 - Acute Coronary Syndromes: Angiography, Invasive Imaging, FFR

### **13.4 - Acute Coronary Syndromes – Treatment**

- 13.4.1 - Acute Coronary Syndromes: Lifestyle Modification
- 13.4.2 - Acute Coronary Syndromes: Pharmacotherapy
  - 13.4.2.1 - Acute Coronary Syndromes: Antiplatelet Agents
  - 13.4.2.2 - Acute Coronary Syndromes: Thrombolysis/Fibrinolysis
  - 13.4.2.3 - Acute Coronary Syndromes: Statins
- 13.4.3 - Acute Coronary Syndromes: Treatment, Revascularization
  - 13.4.3.1 - Acute Coronary Syndromes: Treatment, Revascularization: Coronary Intervention
  - 13.4.3.2 - Acute Coronary Syndromes: Treatment, Revascularization: Bypass Surgery

### **13.5 - Acute Coronary Syndromes – Prevention**

### **13.6 - Acute Coronary Syndromes - Clinical**

- 13.6.1 - Unstable Angina
- 13.6.2 - Non-ST-Elevation Myocardial Infarction (NSTEMI)
- 13.6.3 - ST-Elevation Myocardial Infarction (STEMI)
- 13.6.4 - Acute Coronary Syndromes: Shock
- 13.6.5 - Acute Coronary Syndromes: Post-Infarction Period
- 13.6.6 - Acute Coronary Syndromes: Myocardial Infarction with Non-obstructive Coronary Arteries
- 13.6.7 - Acute Coronary Syndromes: Tako-Tsubo Cardiomyopathy

## **14 - Acute Cardiac Care**

### **14.1 - Acute Cardiac Care – Resuscitation**

### **14.2 - Acute Cardiac Care – Prehospital and Emergency Department Care**

### **14.3 - Acute Cardiac Care – CCU, Intensive, and Critical Cardiovascular Care**

### **14.4 - Acute Cardiac Care – Cardiogenic Shock**

### **14.5 - Acute Cardiac Care – Cardiac Arrest**

## **F - VALVULAR, MYOCARDIAL, PERICARDIAL, PULMONARY, CONGENITAL HEART DISEASE**

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## **15 - Valvular Heart Disease**

### **15.1 - Valvular Heart Disease – Pathophysiology and Mechanisms**

### **15.2 - Valvular Heart Disease – Epidemiology, Prognosis, Outcome**

### **15.3 - Valvular Heart Disease – Diagnostic Methods**

### **15.4 - Valvular Heart Disease – Treatment**

- 15.4.1 - Valvular Heart Disease: Pharmacotherapy
- 15.4.2 - Valvular Heart Disease: Intervention
  - 15.4.2.1 - Aortic Stenosis
  - 15.4.2.2 - Aortic Regurgitation
  - 15.4.2.3 - Mitral Stenosis
  - 15.4.2.4 - Mitral Regurgitation



- 15.4.2.5 - Pulmonary Valve Stenosis
- 15.4.2.6 - Pulmonary Valve Regurgitation
- 15.4.2.7 - Tricuspid Valve Stenosis
- 15.4.2.8 - Tricuspid Valve Regurgitation

15.4.3 - Valvular Heart Disease: Surgery

## **15.5 - Valvular Heart Disease – Prevention**

## **15.6 - Valvular Heart Disease – Clinical**

- 15.6.1 - Aortic Valve Stenosis
- 15.6.2 - Aortic Valve Regurgitation
- 15.6.3 - Aortic Valve Disease, Other
- 15.6.4 - Mitral Valve Stenosis
- 15.6.5 - Mitral Valve Regurgitation
  - 15.6.5.1 - Primary Mitral Valve Regurgitation
  - 15.6.5.2 - Secondary Mitral Valve Regurgitation
- 15.6.6 - Mitral Valve Prolapse
- 15.6.7 - Mitral Valve Disease, Other
- 15.6.8 - Tricuspid Valve Disease
- 15.6.9 - Pulmonary Valve Disease
- 15.6.10 - Rheumatic Heart Disease
- 15.6.11 - Prosthetic Heart Valves

## **16 - Infective Endocarditis**

### **16.1 - Infective Endocarditis – Pathophysiology and Mechanisms**

### **16.2 - Infective Endocarditis – Epidemiology, Prognosis, Outcome**

### **16.3 - Infective Endocarditis – Diagnostic Methods**

- 16.3.1 - Infective Endocarditis – Diagnostic Methods: Imaging
- 16.3.2 - Infective Endocarditis – Diagnostic Methods: Microbiology

### **16.4 - Infective Endocarditis – Treatment**

- 16.4.1 - Infective Endocarditis: Pharmacotherapy
- 16.4.2 - Infective Endocarditis: Surgery

### **16.5 - Infective Endocarditis – Prevention**

### **16.6 - Infective Endocarditis – Clinical**

### **16.7 - Cardiac Implantable Device-related Endocarditis**

## **17 - Myocardial Disease**

### **17.1 - Myocardial Disease – Pathophysiology and Mechanisms**

### **17.2 - Myocardial Disease – Epidemiology, Prognosis, Outcome**

### **17.3 - Myocardial Disease – Diagnostic Methods**

### **17.4 - Myocardial Disease – Treatment**

- 17.4.1 - Myocardial Disease: Pharmacotherapy

### **17.5 - Myocardial Disease – Prevention**

### **17.6 - Myocardial Disease – Clinical**

- 17.6.1 - Myocarditis
- 17.6.2 - Hypertrophic Cardiomyopathy
- 17.6.3 - Dilative Cardiomyopathy
- 17.6.4 - Restrictive Cardiomyopathy and Loeffler’s Disease
- 17.6.5 - Myocardial Disease – Clinical: Arrhythmogenic Right Ventricular Cardiomyopathy
- 17.6.6 - Hypertensive Heart Disease
- 17.6.7 - Infiltrative Myocardial Disease
  - 17.6.7.1 - Amyloid Heart Disease
  - 17.6.7.2 - Cardiac Sarcoidosis
  - 17.6.7.3 - Fabry’s Disease
  - 17.6.7.4 - Mucopolysaccharidosis (MPS)
- 17.6.8 - Chagas Disease
- 17.6.9 - Tako-Tsubo Cardiomyopathy
- 17.6.10 - Peripartum Cardiomyopathy
- 17.6.11 - Ventricular Non-compaction

## **18 - Pericardial Disease**

### **18.1 - Pericardial Disease – Pathophysiology and Mechanisms**

### **18.2 - Pericardial Disease – Epidemiology, Prognosis, Outcome**

### **18.3 - Pericardial Disease – Diagnostic Methods**

### **18.4 - Pericardial Disease – Treatment**

- 18.4.1 - Pericardial Disease: Pharmacotherapy
- 18.4.2 - Pericardial Disease: Intervention and Surgery

### **18.5 - Pericardial Disease – Prevention**

## **18.6 - Pericardial Disease – Clinical**

18.6.1 - Pericarditis

18.6.2 - Pericardial Effusion

18.6.3 - Pericardial Constriction

## **19 - Tumors of the Heart**

### **19.1 - Tumors of the Heart – Pathophysiology and Mechanisms**

### **19.2 - Tumors of the Heart – Epidemiology, Prognosis, Outcome**

### **19.3 - Tumors of the Heart – Diagnostic Methods**

### **19.4 - Tumors of the Heart – Treatment**

### **19.5 - Tumors of the Heart – Prevention**

### **19.6 - Tumors of the Heart – Clinical**

19.6.1 - Myxoma

## **20 - Congenital Heart Disease and Pediatric Cardiology**

### **20.1 - Congenital Heart Disease – Pathophysiology and Mechanisms**

### **20.2 - Congenital Heart Disease – Epidemiology, Prognosis, Outcome**

### **20.3 - Congenital Heart Disease – Diagnostic Methods**

20.3.1 - Congenital Heart Disease: Echocardiography

20.3.2 - Congenital Heart Disease: CMR

### **20.4 - Congenital Heart Disease – Treatment**

20.4.1 - Congenital Heart Disease: Lifestyle Modification

20.4.2 - Congenital Heart Disease: Pharmacotherapy

20.4.3 - Congenital Heart Disease: Intervention

20.4.4 - Congenital Heart Disease: Surgery

### **20.5 - Congenital Heart Disease – Prevention**

### **20.6 - Congenital Heart Disease – Clinical**

20.6.1 - Fetal Heart Disease

20.6.2 - Adult Congenital Heart Disease, Clinical

### **20.7 - Pediatric Cardiology**

## **21 - Pulmonary Circulation, Pulmonary Embolism, Right Heart Failure**

### **21.1 - Pulmonary Circulation, Pulmonary Embolism, Right Heart Failure – Pathophysiology and Mechanisms**

### **21.2 - Pulmonary Circulation, Pulmonary Embolism, Right Heart Failure – Epidemiology, Prognosis, Outcome**

### **21.3 - Pulmonary Circulation, Pulmonary Embolism, Right Heart Failure – Diagnostic Methods**

### **21.4 - Pulmonary Circulation, Pulmonary Embolism, Right Heart Failure - Treatment**

21.4.1 - Pulmonary Circulation, Pulmonary Embolism, Right Heart Failure: Pharmacotherapy

21.4.2 - Pulmonary Circulation, Pulmonary Embolism, Right Heart Failure: Intervention

21.4.3 - Pulmonary Circulation, Pulmonary Embolism, Right Heart Failure: Surgery

### **21.5 - Pulmonary Circulation, Pulmonary Embolism, Right Heart Failure - Prevention**

### **21.6 - Pulmonary Circulation, Pulmonary Embolism, Right Heart Failure – Clinical**

21.6.1 - Pulmonary Embolism

21.6.2 - Venous Thromboembolism

21.6.3 - Pulmonary Hypertension

## **G - AORTIC DISEASE, PERIPHERAL VASCULAR DISEASE, STROKE**

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## **22 - Aortic Disease**

### **22.1 - Aortic Disease – Pathophysiology and Mechanisms**

### **22.2 - Aortic Disease – Epidemiology, Prognosis, Outcome**

### **22.3 - Aortic Disease – Diagnostic Methods**

22.3.1 - Aortic Disease: Echocardiography

22.3.2 - Aortic Disease: Computed Tomography

22.3.3 - Aortic Disease: CMR

### **22.4 - Aortic Disease - Treatment**

22.4.1 - Aortic Disease: Lifestyle Modification

22.4.2 - Aortic Disease: Pharmacotherapy

22.4.3 - Aortic Disease: Intervention

22.4.4 - Aortic Disease: Surgery

### **22.5 - Aortic Disease – Prevention**

### **22.6 - Aortic Disease – Clinical**

22.6.1 - Acute Aortic Syndromes, Aortic Dissection

22.6.2 - Aortic Aneurysm, Thoracic

22.6.3 - Aortic Aneurysm, Abdominal

22.6.4 - Inflammatory Aortic Disease

22.6.5 - Traumatic Injury of the Aorta

## **23 - Peripheral Vascular and Cerebrovascular Disease**

### **23.1 - Peripheral Vascular and Cerebrovascular Disease – Pathophysiology and Mechanisms**

### **23.2 - Peripheral Vascular and Cerebrovascular Disease – Epidemiology, Prognosis, Outcome**

### **23.3 - Peripheral Vascular and Cerebrovascular Disease – Diagnostic Methods**

### **23.4 - Peripheral Vascular and Cerebrovascular Disease - Treatment**

23.4.1 - Peripheral Vascular and Cerebrovascular Disease: Lifestyle Modification

23.4.2 - Peripheral Vascular and Cerebrovascular Disease: Pharmacotherapy

23.4.3 - Peripheral Vascular and Cerebrovascular Disease: Intervention

23.4.4 - Peripheral Vascular and Cerebrovascular Disease: Surgery

### **23.5 - Peripheral Vascular and Cerebrovascular Disease – Prevention**

### **23.6 - Peripheral Vascular and Cerebrovascular Disease – Clinical**

23.6.1 - Peripheral Artery Disease

23.6.2 - Carotid Disease

23.6.3 - Venous Disease

## **24 - Stroke**

### **24.1 - Stroke – Pathophysiology and Mechanisms**

### **24.2 - Stroke – Epidemiology, Prognosis, Outcome**

### **24.3 - Stroke - Diagnostic Methods**

### **24.4 - Stroke - Treatment**

24.4.1 - Stroke: Lifestyle Modification

24.4.2 - Stroke: Pharmacotherapy

24.4.3 - Stroke: Acute Intervention

24.4.4 - Stroke: Surgery

### **24.5 - Stroke – Prevention**

### **24.6 - Stroke – Clinical**

24.6.1 - Stroke: Carotid Stenosis

24.6.2 - Stroke: Persistent Foramen Ovale and PFO closure

24.6.3 - Stroke: Cardiogenic Embolism

24.6.3.1 - Stroke: Atrial Fibrillation

24.6.3.2 - Stroke: LAA and LAA closure

### **24.7 - Heart and Brain Interaction**

## **H - INTERVENTIONAL CARDIOLOGY AND CARDIOVASCULAR SURGERY**

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## **25 - Interventional Cardiology**

### **25.1 - Invasive Imaging and Functional Assessment**

25.1.1 - Invasive Hemodynamic Assessment/Right Heart Catheterization

25.1.2 - Coronary Angiography

25.1.3 - Peripheral Angiography

25.1.4 - Intracoronary Ultrasound

25.1.5 - Optical Coherence Tomography

25.1.6 - Fractional Flow Reserve

25.1.7 - Coronary Flow Reserve

### **25.2 - Coronary Intervention**

25.2.1 - Coronary Intervention: Vascular Access

25.2.2 - Coronary Intervention: Devices

25.2.3 - Coronary Intervention: Stents

25.2.4 - Coronary Intervention: Technique

25.2.5 - Coronary Intervention: Complications

25.2.6 - Coronary Intervention: Primary and Acute PCI

25.2.7 - Coronary Intervention: CTO

25.2.8 - Coronary Intervention: Adjunctive Pharmacotherapy

25.2.9 - Coronary Intervention: Mechanical Circulatory Support

25.2.10 - Coronary Intervention: Restenosis

25.2.11 - Coronary Intervention: Stent Thrombosis

25.2.12 - Coronary Intervention: Outcome

### **25.3 - Non-coronary Cardiac Intervention**

25.3.1 - Aortic Valve Intervention

25.3.2 - Mitral Valve Intervention

25.3.3 - Tricuspid Valve Intervention

25.3.4 - Pulmonary Valve Intervention

25.3.5 - PFO/ASD Closure

25.3.6 - LAA Closure

- 26 - Cardiovascular Surgery**
- 26.1 - Cardiovascular Surgery – Coronary Arteries**
- 26.2 - Cardiovascular Surgery – Valves**
- 26.3 - Cardiovascular Surgery – Congenital Heart Disease**
- 26.4 - Cardiovascular Surgery – Aorta**
- 26.5 - Cardiovascular Surgery – Carotid and Peripheral Arteries**
- 26.6 - Cardiovascular Surgery – Ventricular Assist Devices and Artificial Heart**
- 26.7 - Cardiovascular Surgery - Circulatory Support**
- 26.8 - Cardiovascular Surgery - Transplantation**
- 26.9 - Cardiovascular Surgery – Arrhythmias**
- 26.10 - Cardiovascular Surgery – Minimally Invasive Surgery**

## **I - HYPERTENSION**

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### **27 - Hypertension**

#### **27.1 - Hypertension – Pathophysiology and Mechanisms**

- 27.1.1 - Target Organ Damage/ Left Ventricular Hypertrophy
- 27.1.2 - Renin-Angiotensin System
- 27.1.3 - Endocrine Hypertension
- 27.1.4 - Renal Artery Stenosis / Autonomic Nervous System

#### **27.2 - Hypertension – Epidemiology, Prognosis, Outcome**

#### **27.3 - Hypertension – Diagnostic Methods**

- 27.3.1 - Blood Pressure Measurement

#### **27.4 - Hypertension – Treatment**

- 27.4.1 - Hypertension: Lifestyle Modification
- 27.4.2 - Hypertension: Pharmacotherapy
- 27.4.3 - Hypertension: Device Treatment and Intervention
  - 27.4.3.1 - Renal Denervation

#### **27.5 - Hypertension – Prevention**

#### **27.6 - Hypertension – Clinical**

## **J – PREVENTIVE CARDIOLOGY**

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### **28 - Risk Factors and Prevention**

#### **28.1 - Risk Factors and Prevention – Epidemiology**

#### **28.2 - Risk Factors and Prevention – Cardiovascular Risk Assessment**

- 28.2.1 - Prevention – Cardiovascular Risk Assessment: Scores
- 28.2.2 - Prevention – Cardiovascular Risk Assessment: Biomarkers
- 28.2.3 - Prevention – Cardiovascular Risk Assessment: Imaging

#### **28.3 - Secondary Prevention**

#### **28.4 - Lipids**

- 28.4.1 - Lipids: Drug therapy

#### **28.5 - Tobacco**

#### **28.6 - Obesity**

#### **28.7 - Diabetes and the Heart**

- 28.7.1 - Diabetes and the Heart: Pathophysiology
- 28.7.2 - Metabolic Syndrome, Insulin, Insulin Resistance
- 28.7.3 - Diabetes and the Heart: Pharmacotherapy
- 28.7.4 - Diabetes and the Heart: PCI and Surgery

#### **28.8 - Environmental and Occupational Aspects of Heart Disease**

- 28.8.1 - Environmental Aspects of Heart Disease
- 28.8.2 - Occupational Aspects of Heart Disease

#### **28.9 - Stress, Psycho-Social and Cultural Aspects of Heart Disease**

#### **28.10 - Depression and Heart Disease**

#### **28.11 - Nutrition, Malnutrition and Heart Disease**

#### **28.12 - Physical Inactivity and Exercise**

- 28.12.1 - Prevention: Physical Inactivity
- 28.12.2 - Prevention: Exercise

#### **28.13 - Sleep Disorders**

- 28.13.1 - Sleep Apnea

## **29 - Rehabilitation and Sports Cardiology**

### **29.1 - Exercise Testing**

29.1.1 - Spiroergometry

### **29.2 - Cardiovascular Rehabilitation**

29.2.1 - Rehabilitation: Exercise Programmes

29.2.2 - Rehabilitation: Education

29.2.3 - Rehabilitation: Outcomes

### **29.3 - Sports Cardiology**

29.3.1 - Athlete's Heart

29.3.2 - Sports Cardiology: Electrocardiography (ECG)

29.3.3 - Sports Cardiology: Arrhythmias

29.3.4 - Sudden Death in Sports

29.3.5 - Pre-Competition Screening and Sports Eligibility

29.3.6 - Cardiovascular Effects of Substance Abuse/Doping

## **K – CARDIOVASCULAR DISEASE IN SPECIAL POPULATIONS**

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### **30 - Cardiovascular Disease in Special Populations**

#### **30.1 - Cardiovascular Disease in Primary Care**

#### **30.2 - Cardiovascular Disease in Women**

#### **30.3 - Cardiovascular Disease in Special Populations: Pediatric Cardiology**

#### **30.4 - Non-cardiac Surgery/Pre-surgical Assessment**

#### **30.5 - Cardiovascular Disease in the Elderly**

#### **30.6 - Cardio-Oncology**

#### **30.7 - Pregnancy and Cardiovascular Disease**

#### **30.8 - HIV and Cardiovascular Disease**

#### **30.9 - Renal Failure and Cardiovascular Disease**

#### **30.10 - Neurologic Disorders and Heart Disease**

#### **30.11 - Psychiatric Disorders and Heart Disease**

#### **30.12 - Autoimmune/Chronic Inflammatory Disorders and Heart Disease**

#### **30.13 - Substance Abuse and Cardiovascular Disease**

## **L – CARDIOVASCULAR PHARMACOLOGY**

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### **31 - Pharmacology and Pharmacotherapy**

#### **31.1 - Cardiovascular Pharmacotherapy**

31.1.1 - Aldosterone Antagonists

31.1.2 - Antiarrhythmic Pharmacotherapy

31.1.3 - Angiotensin-Renin-Bradykinine System

31.1.4 - Anticoagulants

31.1.5 - Antiplatelet Drugs

31.1.6 - Beta Blockers

31.1.7 - Calcium Channel Blockers

31.1.8 - Diuretics

31.1.9 - Nitrates

31.1.10 - Lipid-Lowering Agents

31.1.10.1 - Statins

31.1.10.2 - Cholesterol Resorption Antagonists

31.1.10.3 - LDL-Receptor Antagonists

31.1.10.4 - PCSK9-Antagonists

31.1.11 - Anti-Diabetic Pharmacotherapy

#### **31.2 - Pharmacogenetics**

#### **31.3 - Biotherapies**

#### **31.4 - Cardiotoxicity of Drugs**

## **M – CARDIOVASCULAR NURSING**

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### **32 - Cardiovascular Nursing**

#### **32.1 - Acute Nursing Care**

#### **32.2 - Chronic Nursing Care**

## **N – E-CARDIOLOGY / DIGITAL HEALTH, PUBLIC HEALTH, HEALTH ECONOMICS, RESEARCH METHODOLOGY**

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### **33 - e-Cardiology / Digital Health**

#### **33.1 - Image Processing and Imaging Standards**

#### **33.2 - Cardiovascular Signal Processing**

33.2.1 - ECG and Arrhythmia Analysis

#### **33.3 - Computer Modeling and Simulation**

#### **33.4 - Digital Health**

33.4.1 - Remote Patient Monitoring and Telemedicine

33.4.2 - Hospital Information Systems

33.4.3 - Digital Health: Big Data Analysis

33.4.4 - e-Health

33.4.5 - m-Health

### **34 - Public Health and Health Economics**

#### **34.1 - Public Health**

#### **34.2 - Health Policy**

#### **34.3 - Health Economics**

### **35 - Research Methodology**

#### **35.1 - Biostatistics**

#### **35.2 - Research Methodology: Big Data Analysis**

#### **35.3 - Cardiovascular Epidemiology**

#### **35.4 - Trial Design**

#### **35.5 - Research Ethics**

## **O – BASIC SCIENCE**

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### **36 - Basic Science**

#### **36.1 - Basic Science - Cardiovascular Development and Anatomy**

36.1.1 - Basic Science - Cardiovascular Development and Anatomy: Stem Cells, Cell Cycle, Cell Senescence, Cell Death

36.1.2 - Basic Science - Cardiovascular Development and Anatomy: Genetics, Epigenetics, ncRNA

#### **36.2 - Basic Science - Cardiac Biology and Physiology**

36.2.1 - Stem Cells, Cell Cycle, Cell Senescence, Cell Death

36.2.2 - Basic Science - Cardiac Biology and Physiology: Genetics, Epigenetics, ncRNA

36.2.3 - Basic Science - Cardiac Biology and Physiology: Signal Transduction, Mechano-Transduction

36.2.4 - Basic Science - Cardiac Biology and Physiology: Ion Channels, Electrophysiology

36.2.5 - Basic Science - Cardiac Biology and Physiology: Mitochondria

36.2.6 - Basic Science - Cardiac Biology and Physiology: Microvesicles, Exosomes

36.2.7 - Basic Science - Cardiac Biology and Physiology: Metabolism

36.2.8 - Basic Science - Cardiac Biology and Physiology: Leukocytes, Inflammation, Immunity

36.2.9 - Basic Science - Cardiac Biology and Physiology: Biomaterials, Tissue Engineering

#### **36.3 - Basic Science - Cardiac Diseases**

36.3.1 - Ischemia, Infarction, Cardioprotection

36.3.2 - Basic Science - Cardiac Diseases: Cardiac Hypertrophy

36.3.3 - Basic Science - Cardiac Diseases: Heart Failure

36.3.4 - Basic Science - Cardiac Diseases: Arrhythmias

36.3.5 - Basic Science - Cardiac Diseases: Cardiomyopathies

36.3.6 - Basic Science - Cardiac Diseases: Valvular Heart Disease

36.3.7 - Basic Science - Cardiac Diseases: Congenital Heart Disease

36.3.8 - Basic Science - Cardiac Diseases: Leukocytes, Inflammation, Immunity

36.3.9 - Basic Science - Cardiac Diseases: Fibrosis

36.3.10 - Basic Science - Cardiac Diseases: Drugs, Drug Targets

36.3.11 - Basic Science - Cardiac Diseases: Gene Therapy, Cell Therapy

36.3.12 - Basic Science - Cardiac Diseases: Biomarkers

#### **36.4 - Basic Science - Vascular Biology and Physiology**

36.4.1 - Stem Cells, Cell Cycle, Cell Senescence, Cell Death

36.4.2 - Basic Science - Vascular Biology and Physiology: Genetics, Epigenetics, ncRNA

36.4.3 - Basic Science - Vascular Biology and Physiology: Signal Transduction, Mechano-Transduction

36.4.4 - Vascular Tone, Permeability, Microcirculation

36.4.5 - Vascular Biology and Physiology: Ion Channels, Electrophysiology

36.4.6 - Basic Science - Vascular Biology and Physiology: Mitochondria

36.4.7 - Basic Science - Vascular Biology and Physiology: Microvesicles, Exosomes

36.4.8 - Lipids, Metabolism

36.4.9 - Platelets, Haemostasis, Coagulation

36.4.10 - Basic Science - Vascular Biology and Physiology: Leukocytes, Inflammation, Immunity

36.4.11 - Basic Science - Vascular Biology and Physiology: Biomaterials, Tissue Engineering

**36.5 - Basic Science - Vascular Diseases**

36.5.1 - Microcirculation, Angiogenesis, Arteriogenesis

36.5.2 - Atherosclerosis, Cerebrovascular Diseases, Aneurysm, Restenosis

36.5.3 - Hypertension, Pulmonary Hypertension

36.5.4 - Thrombosis, Bleeding

36.5.5 - Lipid Metabolism, Metabolic Syndrome, Diabetes

36.5.6 - Basic Science - Vascular Diseases: Leukocytes, Inflammation, Immunity

36.5.7 - Basic Science - Vascular Diseases: Fibrosis

36.5.8 - Basic Science - Vascular Diseases: Drugs, Drug Targets

36.5.9 - Basic Science - Vascular Diseases: Gene Therapy, Cell Therapy

36.5.10 - Basic Science - Vascular Diseases: Biomarkers