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NURSES IN SUDDEN CARDIAC DEATH PREVENTION

DR TAIWO

8th Abuja Cardiovascular Symposium 2024


The Limi
Hospitals
Since 1982



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WHAT IS SUDDEN CARDIAC DEATH



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Reversing Medical Tourism

- Coined from 2 words; “sudden” and “cardiac”.
- Sudden-Implies that death occurred unexpectedly
- The sequence of events that led to death occurred within a short time span
- Usually one hour before death
- It is generally assumed that the patient was in a stable condition before the sudden and lethal event



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NURSES IN CARDIAC DEATH

- “Cardiac” implies that the primary pathology occurred in the heart.
- **Sudden death** is a **sudden and unexpected cardiac arrest** that occurs in people who appear to be in good health.
- It is generally assumed that the majority (85%) of SCD victims die of ventricular tachyarrhythmias, usually in the form of ventricular fibrillation (VF).
- The remaining SCD victims die either of bradyarrhythmias or of acute pump failure.

Introduction

- Cardiac catheterization procedures in the dedicated catheterization laboratory (cathlab) are apparently at an infantile stage in Nigeria.
- The cardiac cathlab is invaluable in the practice of Cardiology as its use is the **gold standard** for diagnosis and treatment of many cardiovascular conditions.
- In Northern Nigeria, **two prior indigenous cathlab installations had been reported**, one public and one private which had become non-functional.
- However, since 2015 there has reportedly been **no functional indigenous cardiac cathlab in the entire Northern Nigeria**.

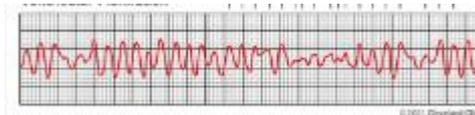
NURSES IN CARDIAC DEATH

- Ventricular fibrillation(VF)
- Results in a rapid and complete loss of blood circulation.
- If left untreated, results in irreversible organ (most notably brain) damage after a few minutes .
- If the affected patient does not receive **immediate medical attention**, they will die as a result of **cardiac arrest**

VENTRICULAR TACHYCARDIA



VENTRICULAR FIBRILLATION





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NURSES IN SUDDEN CARDIAC DEATH

- Primary prevention of SCD requires identification of future sudden death victims before the first arrhythmia episode
- Correct identification of future SCD victims is especially important
- There is an effective treatment-defibrillation via an external or internal (implanted) defibrillator.

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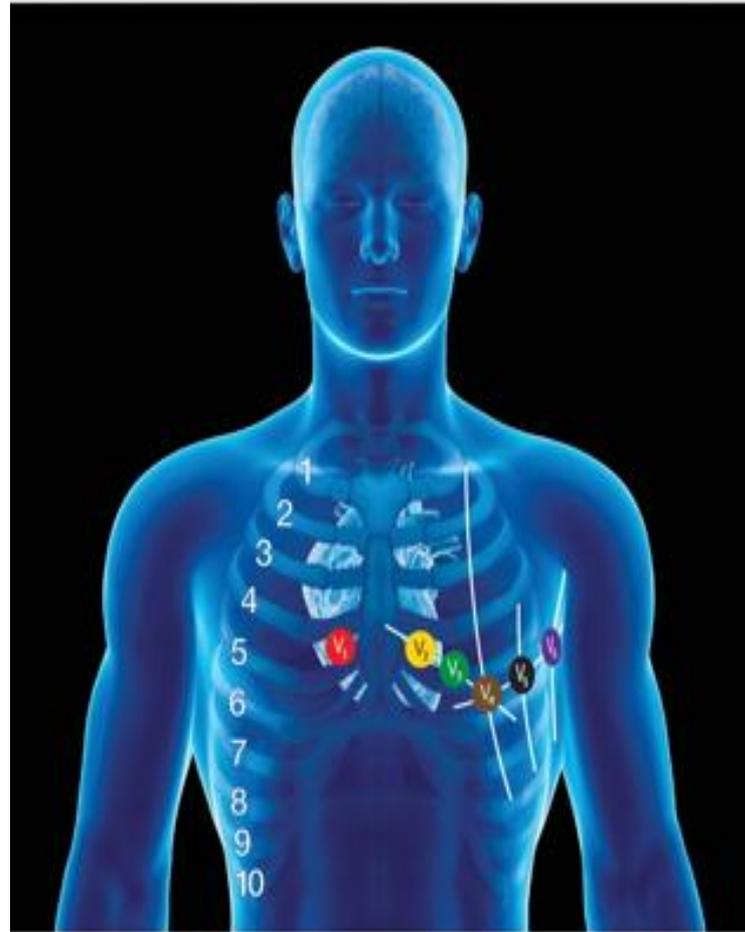
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Electrocardiography (ECG)



V1: 4th Intercostal
right of the sternum

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left of the sternum

V3: Midway between
V2 and V4

V4: 5th Intercostal
the left mid-clavicular

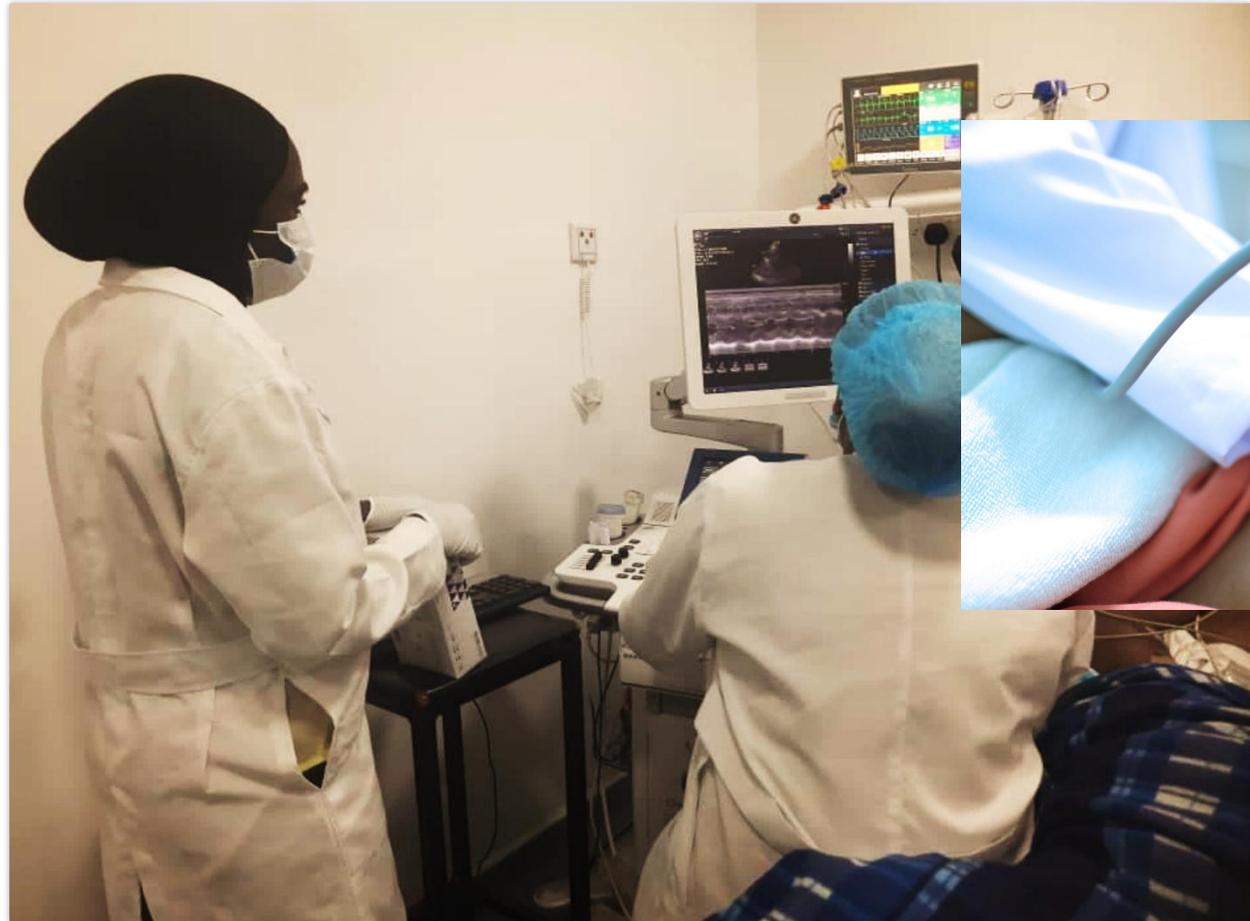
V5: 5th Intercostal
the left anterior axillary

V6: 5th Intercostal
the left mid-axillary

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Who is Cardiocare Multispecialty Hospital



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Northern Nigeria's **pioneer standalone Institution** wholly dedicated to comprehensive **Cardiovascular and Internal Medicine**.

Received Multiple **Awards for Excellence in Service**.

We are a **Support Hospital** for your practice in Nigeria through our **specialized services, training, and research in collaboration with**



Abuja Cardiovascular Symposia- Five (8) so far.



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Reversing Medical Tourism

- Over 750 participants from over 30 states
- Trained in **PRIMARY CARDIOVASCULAR**
 - ECG interpretation,
 - Basic Management of Diabetes, Hypertension
 - Basic Life Support
- **10 CME points & Certificate**



National Interventional Cardiology Symposium- One (1)

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 - Lagos=3, Benin=1, Kano=3, Katsina=3, Sokoto=5
 - Enugu=3, Gombe= 5, Jos=5, Kebbi=4, FCT= 8



Our Experience

- A total of **1000 procedures** were carried out on 847 patients over the last 5 years
- Male to female ratio of **4.4:1**,
- Mean age of **59.0 (+/- 12.4)** years
- Of the patients,
 - 32 (10.6%) were partially financed through discounts, sponsorships, and donations from:
 - Cardiocare/Limi Hospitals
 - Nigerian Cardiovascular Education Foundation



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Fixing Heart Diseases without Open Surgery while
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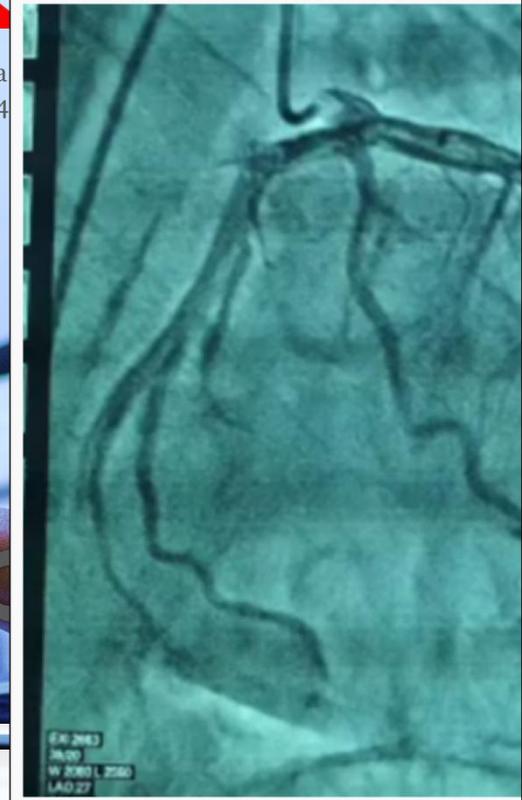
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Coronary Angiography & Percutaneous Coronary Intervention

For Heart Attacks/Myocardial Infarction, Angina, Ischemic Heart Disease/Failure-
Stents, Balloon Angioplasty, & Chronic Total Occlusions (CTO) of Heart Vessels

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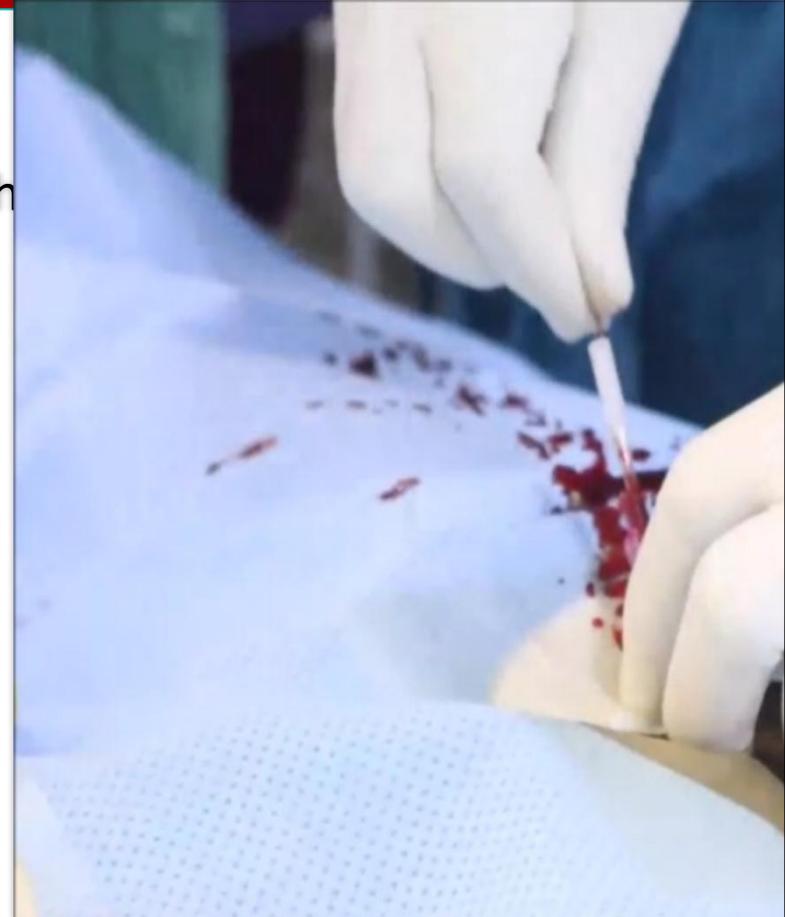
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For Heart Attacks/Myocardial Infarction, Angina, Ischemic Heart Disease/Failure-
Stents, Balloon Angioplasty, & Chronic Total Occlusions (CTO) of Heart Vessels

Our Experience- Coronary

- The predominant procedures were:
 - 233 (51.3%) diagnostic coronary angiography
 - 90 (19.8%) percutaneous interventions





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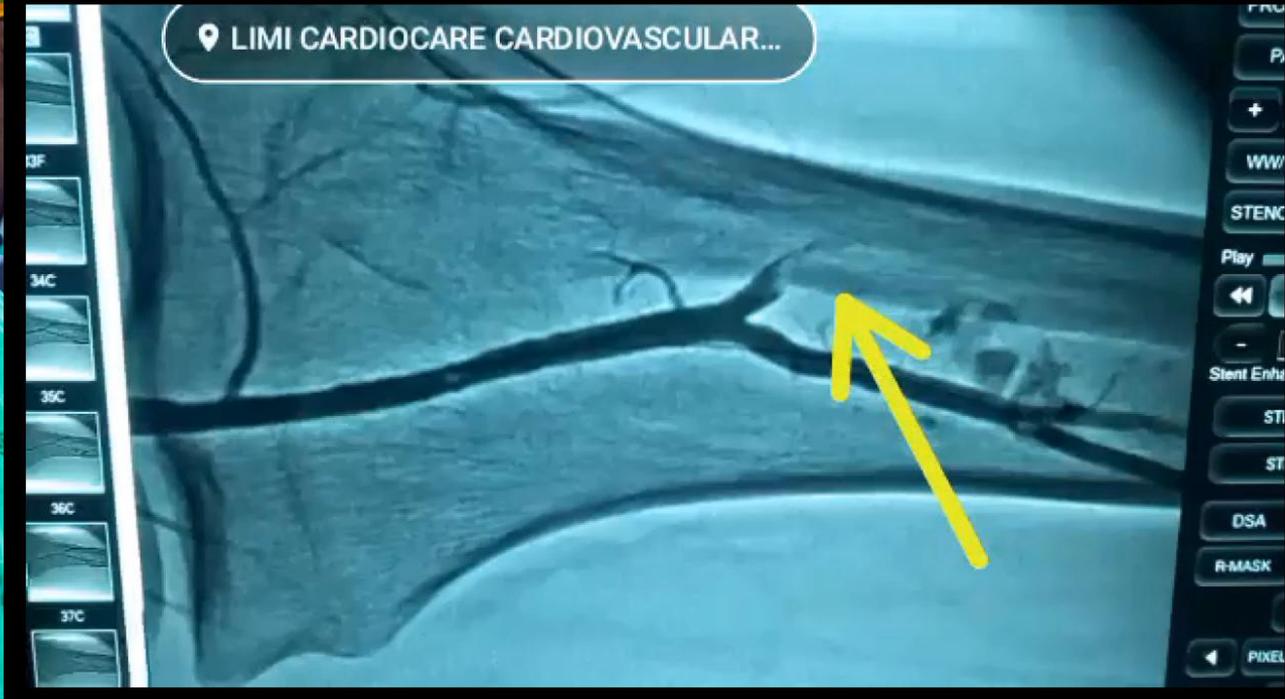
For Peripheral Arterial Disease - to reduce tissue loss and gangrene especially lower limb

Stenting, Balloon Angioplasty, Thrombosuction, Catheter-Directed Thrombolytic Therapy (CDTT)

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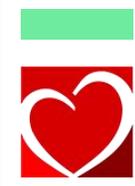
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Pacemakers, Implantable Defibrillators, Cardiac
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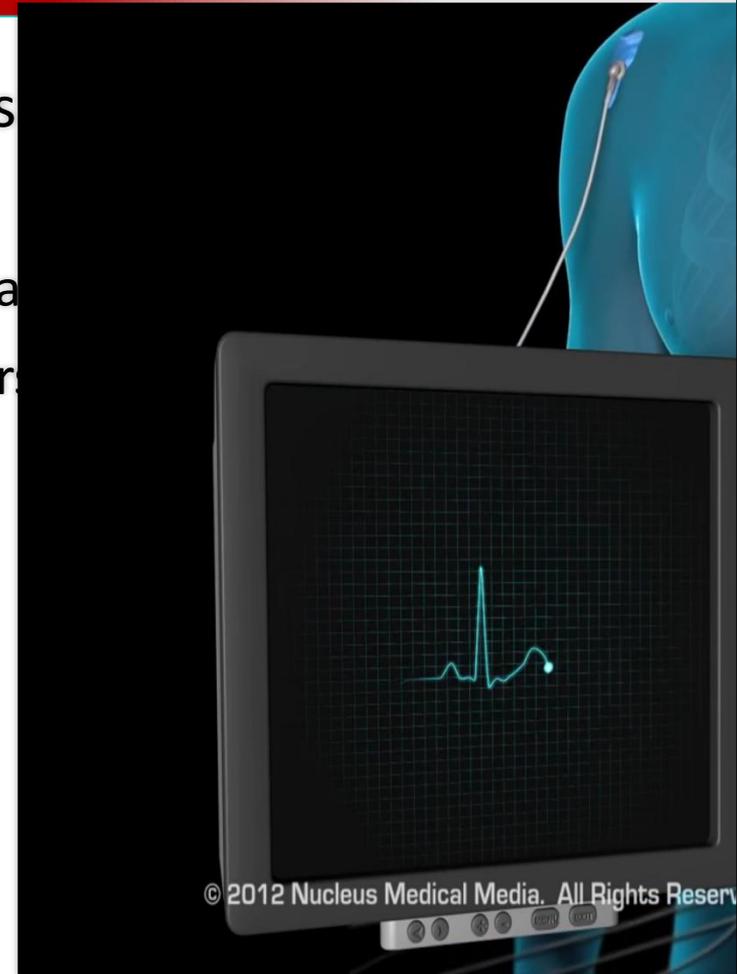
Our Experience- Cardiac Devices



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Reversing Medical Tourism

- 43 (9.5%) permanent cardiac devices consist of
 - 20 (4.4%) Pacemakers,
 - 14 (3.1%) Cardiac resynchronization devices, and
 - 9 (2.0%) implantable cardioverter defibrillators.



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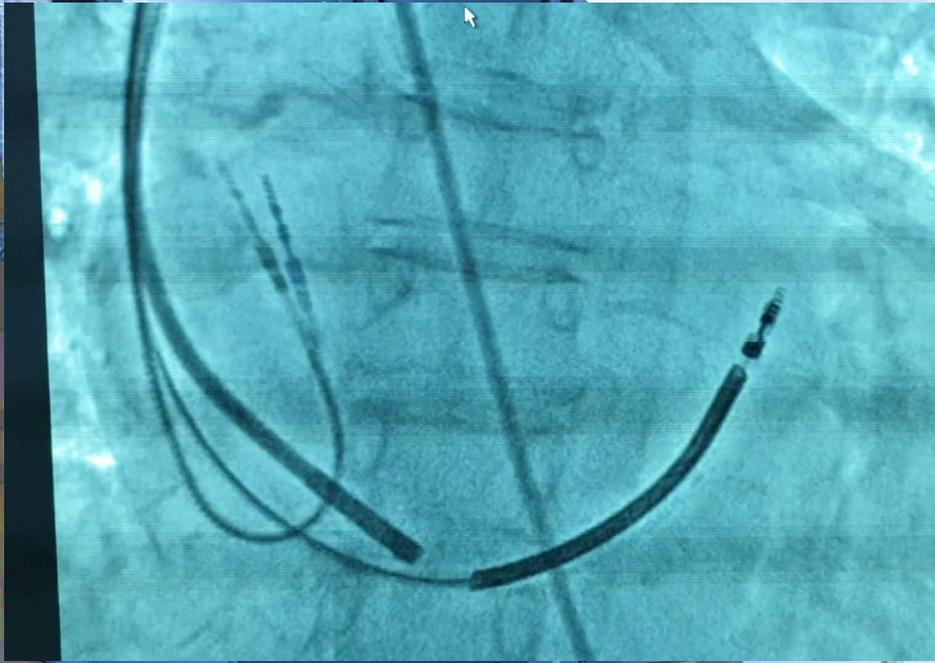


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Indications for permanent pacing



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- In bradycardia caused by reversible etiologies, permanent pacing is not warranted.
- The **indication for pacing is based on the severity of bradycardia** rather than its etiology.
- Symptomatic sinus bradycardia as a result of medical therapy is an indication for permanent pacing if there are no alternative treatment options.
- Typically from:
 1. Sinus Node Dysfunction
 2. AV Block



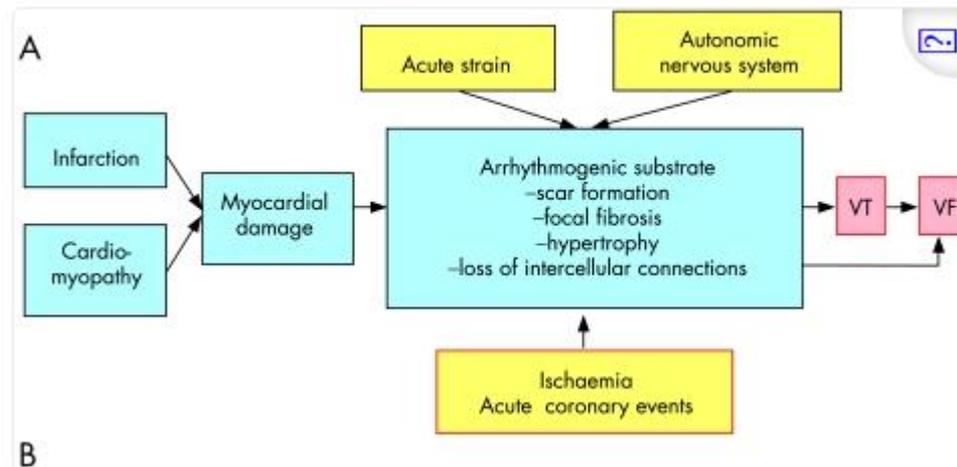
RISK FACTORS FOR SUDDEN CARDIAC DEATH



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- **Age** - Between birth and the first six months of age (sudden infant death) and between 45 and 74 years.
- **Gender** - sudden death is **more frequent in men** than in women.
- **Cardiovascular risk factors** – people with cardiovascular risk factors (Hypertension, **obesity, diabetes, smoking**)
- Existing cardiovascular disease- Heart failure, Coronary heart disease etc
- **Family history of sudden cardiac death or sudden cardiac arrest** - individuals with such family history is associated with 1.5 - 1.8-fold increased risk of sudden death





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NURSES IN CARDIAC DEATH

- ECG changes associated with “electrical” diseases that predispose to sudden cardiac death.

long QT and short QT syndromes

The Brugada syndrome

Wolff-Parkinson-White syndrome

Arrhythmogenic right ventricular Cardiomyopathy(ARVC).

■

AETIOLOGIES OF SUDDEN CARDIAC DEATH- WHAT TO LOOK FOR



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- There are currently four major identifiable aetiologies of SCD:

Ventricular fibrillation in the setting of acute cardiac ischaemia

Ventricular arrhythmias in patients with heart failure or valvular heart disease

Ventricular arrhythmias in patients with inherited arrhythmogenic disease

Drug-induced proarrhythmia (“iatrogenic” SCD)

Peripheral Angiography and Intervention cardiocare



OTHER CAUSES

- **Hypertrophic cardiomyopathy:** This is a genetic disease characterised by thickening of the heart - in most cases, of the left ventricle. It is the leading cause of sudden death in adults under the age of 50;
- **Dilated cardiomyopathy:** Dilation occurs in the left ventricle and systolic dysfunction that makes it impossible for the heart to pump blood. Most causes are unknown although a viral aetiology has been implicated in some cases;
- **Arrhythmogenic right ventricular dysplasia** of the right ventricle: this is an inherited disease in which there is a progressive loss of myocytes that are replaced by adipose tissue. It affects adults who are not over 40 years old

CAUSES

- **Brugada syndrome**: This is a heart disease characterised by a series of episodes of **polymorphic ventricular tachycardia** that can cause fainting or sudden death
- **Long QT syndrome**: This is characterised by **cardiac arrhythmias** due to different structural abnormalities in the sodium and potassium channels of the heart
- **Catecholaminergic polymorphic ventricular tachycardia**: This is a hereditary condition in which hearts have abnormal receptors that become excessively sensitive to adrenaline and increased tendency to **abnormal heart rhythm** (ventricular tachycardia).

SYMPTOMS OF SUDDEN DEATH



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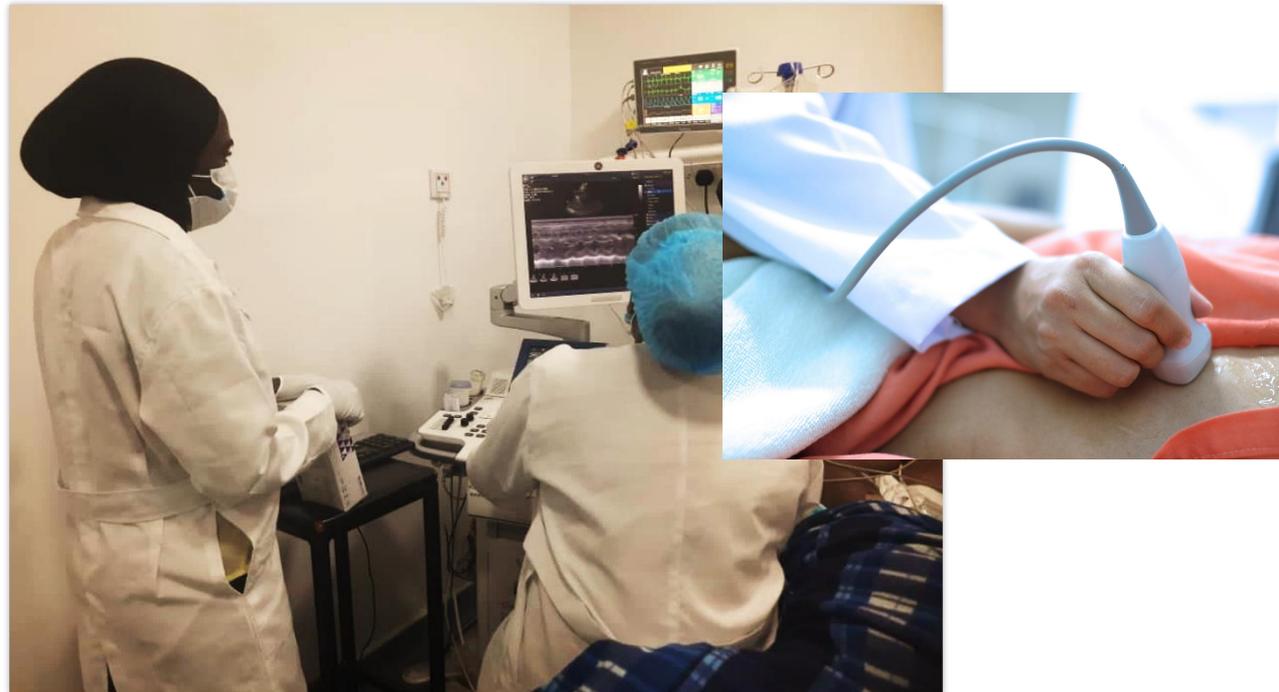
- Some **signs** can help to identify it quickly
- Near fainting episodes
- Loss of Consciousness
- **Lack of response to stimull**
- **Ceasing to breathe**

How to perform Transthoracic Echocardiography



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MANAGEMENT

- If a nearby defibrillator is not available-
- **cardiopulmonary resuscitation (CPR)** may be performed, with **cardiac massage** and **mouth-to-mouth breathing** applied.
- Survivors of **sudden cardiac death** should have an implantable cardioverter-defibrillator for prevention of such deadly events in the future.
-
- family screening is advisable.



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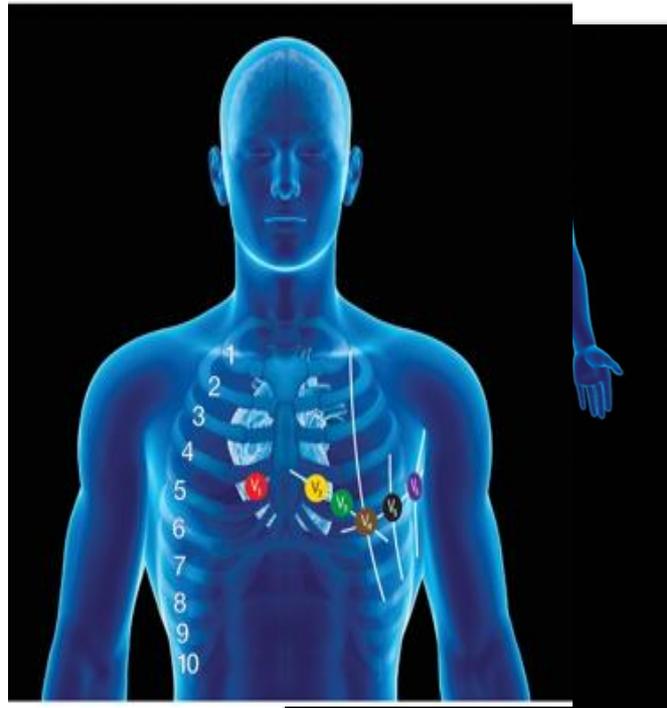
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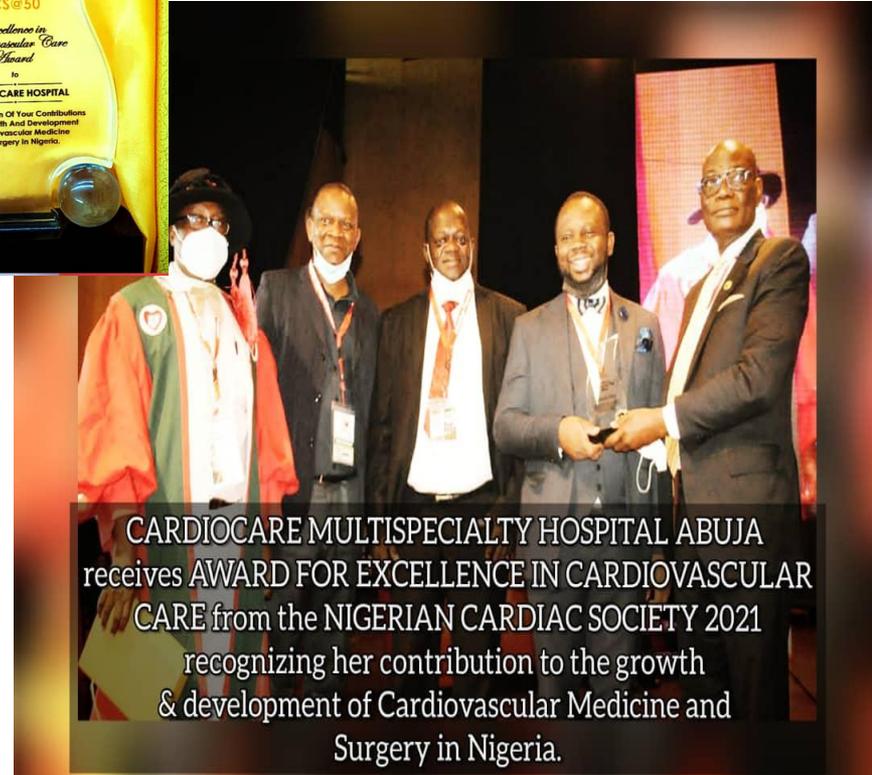
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Fixing Heart Diseases without Open Surgery while awake.



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Peripheral Angiography and Intervention cardiocare

For Peripheral Arterial Disease - to reduce tissue loss and gangrene especially lower



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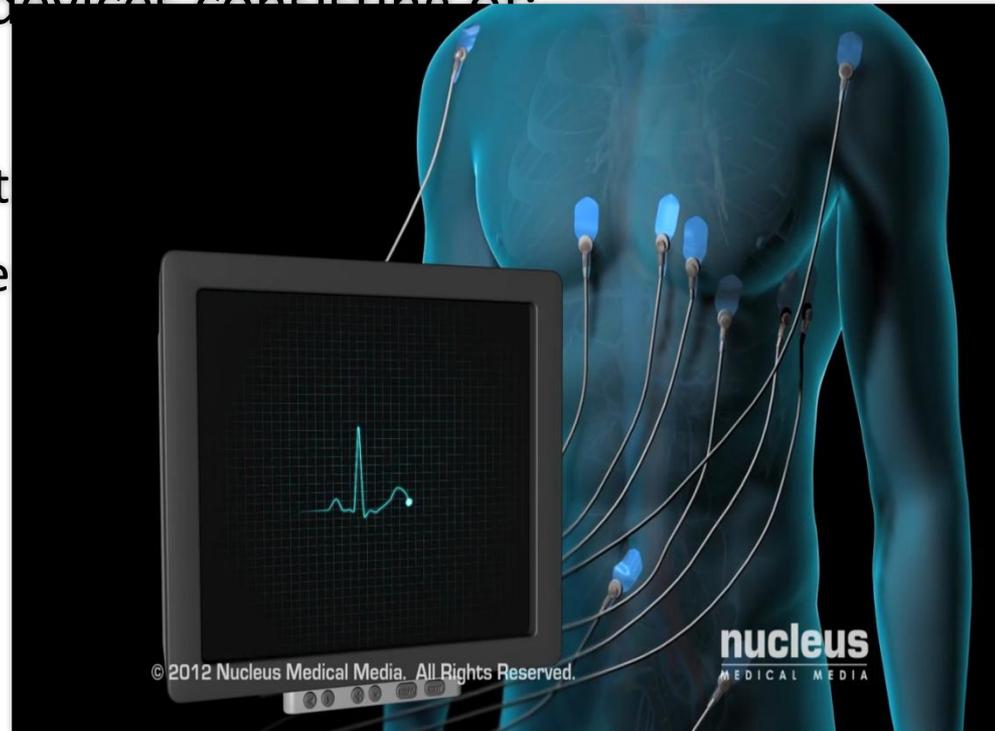
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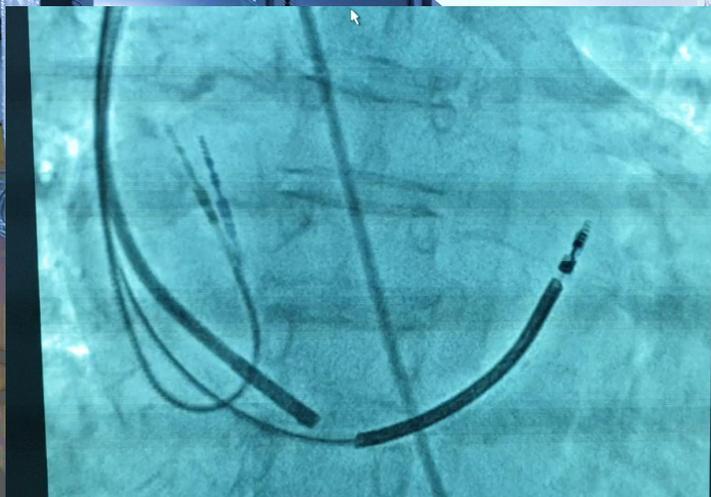


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Indications for permanent pacing



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- Symptomatic sinus bradycardia as a result of medical therapy is an indication for permanent pacing if there are no alternative treatment options.
- Typically from:
 1. Sinus Node Dysfunction
 2. AV Block

WHAT TO LOOK FOR

- Identifying High-Risk Patients

1. Cardiovascular disease: Patients with a history of heart disease, hypertension, or cardiac arrhythmias.



2. Family history: Patients with a family history of sudden cardiac death.



3. Previous cardiac events: Patients who have experienced previous cardiac events, such as myocardial infarction or cardiac arrest.

Peripheral Angiography and Intervention cardiocare



WHEN TO ACT

- Recognizing Warning Signs is essential
 1. Chest pain or discomfort- Sudden, severe, or persistent chest pain or discomfort.
- 2. Shortness of breath: Sudden or severe shortness of breath.
 3. Dizziness or lightheadedness: Sudden or severe dizziness or lightheadedness.
 4. Palpitations: Sudden or severe palpitations.
 5. Syncope: Sudden loss of consciousness.
 6. Ceasing to breathe



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WHAT TO DO

- Acting Quickly is Key

1. Call for emergency assistance: Activate the emergency response system or call the local emergency number.

2. Assess the patient's airway, breathing, and circulation (ABCs)

Check the patient's airway, breathing, and circulation

3. Start CPR if necessary: Begin cardiopulmonary resuscitation (CPR) if the patient is unresponsive and not breathing.

WHAT TO DO

- Providing Emergency Care

1. Defibrillation: Use an automated external defibrillator (AED) if available and the patient is in cardiac arrest.



2. Medication administration: Administer medications as prescribed, such as epinephrine or atropine.



3. Oxygen therapy: Provide oxygen therapy as needed.



4. Cardiac monitoring: Continuously monitor the patient's cardiac rhythm.

WHAT TO DO

- Post-Event Care

1. ***Transfer to a cardiac care unit***: Transfer the patient to a cardiac care unit for further evaluation and treatment.
2. **cardiac monitoring***: Continuously monitor the patient's cardiac rhythm.
- 3. ***Medication management***: Manage medications as prescribed.
- 4. ***Patient education***: Educate the patient and their family on the importance of follow-up care and lifestyle modifications.

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WHAT TO DO

- Prevention Strategies

1. Encourage risk factor modification; smoking cessation etc

-
- 2. Encourage Regular health check-ups

-
- 3. Cardiac rehabilitation.

WHAT TO DO

- 1. Cardiovascular history: Assess the patient's cardiovascular history, previous cardiac events, hypertension, and hyperlipidemia.
 2. Family history: Assess the patient's family history of cardiovascular disease and sudden death.
 3. Current medications: Assess the patient's current medications, including beta blockers, anti-arrhythmics, and anticoagulants.
 4. Vital signs: Monitor the patient's vital signs, including heart rate, blood pressure, and oxygen saturation.
- 5 Cardiac monitoring: Continuously monitor the patient's cardiac rhythm for signs of arrhythmias or cardiac arrest

EDUCATION AND SUPPORT

1. Educate the patient and their family on the importance of follow-up care and lifestyle modifications.
2. Family support: Provide emotional support to the patient's family and encourage them to participate in the patient's care
3. Community resources: Provide information on community resources, such as support groups and home health care services

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REFERENCES

- Kirchhof P, Breithardt G, Eckardt L. Primary prevention of sudden cardiac death. *Heart*. 2006 Dec;92(12):1873-8.
- Yancy, C.W et al, 2017 ACC/AHA/HFSA Focused update of the Guideline for the management of Heart Failure, *Journal of the American College of Cardiology*, 70(6), 776-803
- Lindefeld J et al, HFSA 2010, Comprehensive Heart Failure Practice Guideline. *Journal of Cardiac Failure* 16(6) 475-539