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presents the workshop:

"12 Lead ECG Interpretation and Acute Coronary Syndrome with Case Studies from the Cardiac Catheterization Lab."

The next three pages provide a brief summary of our Workshop Agenda and Educational Objectives.

The information contained on pages 5 through 12 is from the introduction to the textbook: "12 Lead ECG Interpretation in Acute Coronary Syndrome with Case Studies from the Cardiac Catheterization Lab."

The textbook's Table of Contents (pages 6 – 8) provide a more detailed description of our Workshop's content.

The textbook serves as the sole foundation for our one-day ECG workshop bearing the same name. Therefore, all medical editing and reviews of the textbook concurrently apply to our workshop.

Participants who attend our workshop receive a 156 page color workbook which is synchronized with the workshop's PowerPoint presentation. The workbook also contains review questions and practice ECGs, intended to reinforce participants' knowledge of the material.

For those who need a detailed, specific breakdown of our workshop's **knowledge and skills objectives**, presented in the format of Bloom's Taxonomy, please contact our Program Director at the email address listed below.

For more information about our workshops, please contact our Program Director via email at: wayne@ECGTraining.org or call us at 1-888-727-6910

This one day workshop is intended for medical professionals whom are already competent with single-lead ECG rhythm strip interpretation, who desire to upgrade their skills to the 12 Lead ECG level. Our workshop prepares critical care practitioners to:

- Interpret 12 Lead ECGs
- Assimilate data derived from the 12 Lead ECG into a comprehensive patient evaluation process which is designed to compensate for the ECGs well known problems with lack of sensitivity and specificity
- Identify 13 patterns of myocardial ischemia and infarction, including the most subtle ECG changes which are often missed by veteran clinicians and the ECG machine's automated interpretation software
- Correlate each lead of the ECG with specific regions of the heart – and the coronary arterial distribution that commonly supplies it
- Identify the infarct related artery via ECG interpretation in 11 common classifications of Acute Myocardial Infarction (AMI).
- Anticipate specific complications resulting from the failure of cardiac structures commonly supplied by the occluded arterial distribution in cases of AMI

The first half of the workshop focuses on the “fundamentals” of 12 Lead ECG Interpretation. We provide a comprehensive review of *coronary arterial anatomy*, which provides an essential foundation for those who want to understand the complications and pathophysiologies of several classifications of Acute Myocardial Infarction. We also provide useful information about Wolff-Parkinson-White and Long QT Syndromes; this is information that can be used to readily identify patients who are young and healthy whom are at high risk for potentially lethal dysrhythmias.

The second half of the workshop focuses on the ECG evaluation of Acute Coronary Syndrome (ACS). We present a comprehensive patient evaluation process designed to augment the clinician's capability of identifying the most subtle indicators of ACS, with the goal of minimizing misdiagnosis of ACS patients. Multiple Cardiac Cath Lab cases studies of ST Segment Elevation MI (STEMI), Non-STEMI, Unstable Angina are presented. Using actual patient case studies, combined with presentation of the patient's coronary angiography (cath lab films) significantly enhances the ability of participants to thoroughly understand the pathophysiological changes associated with each type of MI. We also present several “infarction mimics,” such as the Brugada Syndrome, which is a genetically acquired condition which is believed to cause 4 – 12% of all cardiac deaths in patients with a structurally normal heart: this includes pediatric patients and young, healthy adults.

WORKSHOP AGENDA:

AM SESSION: 12 Lead ECG Fundamentals - (5.0 CE Hours)

- Essential Cardiac Anatomy and Physiology
 - Coronary Artery Anatomy
 - Cardiac Electrical System
- Basic ECG Principles
 - Correlation of ECG Leads with Coronary Arterial Distributions
 - Cardiac Structures Served by Common Arterial Distributions
- Waveforms and Intervals
- QRS Patterns
- Long QT Syndromes
- Wolff-Parkinson-White Syndrome
- Bundle Branch Blocks
- Chamber Hypertrophy
- Axis Deviation and Rotation

PM SESSION: 12 Lead ECG Identification of ACS - (5.0 CE Hours)

- Acute Coronary Syndrome (ACS) Overview
- The "Quadrad of ACS" - The Key to Accurate Diagnosis
- ACS Symptoms: Typical and Atypical
- ECG Patterns of ACS Associated With:
 - Narrow QRS Complexes
 - LBBB and RBBB QRS Patterns
- Serial ECGs / Cardiac Markers / Risk Factor Profiles
- 15 and 18 Lead ECGs

CASE STUDIES:

- 10 ST Segment Elevation MI (STEMI)
- 9 Non-STEMI & Unstable Angina
- Brugada Syndrome
- STEMI Mimics

WORKSHOP ACCREDITATION:

Our one day 12 Lead ECG workshop has been awarded 10 CE Hours by the State of Florida Board of Nursing and the District of Columbia Board of Nursing.

We are a registered with CE Broker, Provider Number: 50-12998

WORKSHOP OBJECTIVES:

AM Session - Fundamentals of 12 Lead ECG Interpretation - (5.0 CE hours)

Upon completion of this program, participants will be able to:

- Recall sensitivity and specificity problems associated with the 12 Lead ECG
- Recall patient evaluation techniques designed to overcome problems with ECG sensitivity and specificity
- Recall conditions which cause abnormal heart sounds, and their correlating ECG abnormalities
- Recall the two most common coronary arterial anatomic configurations
- Recall critical cardiac structures supplied by each coronary artery
- Identify proper lead placement for obtaining 12 and 18 Lead ECGs
- Identify normal and abnormal ECG waveforms and intervals
- Recall ECG traits and pathophysiology of Long QT syndromes
- Identify Bundle Branch and Fascicular Blocks
- Recall common factors that alter the 12 Lead ECG
- Identify Axis Deviation and Rotation Abnormalities on the 12 Lead ECG
- Identify the four most common causes of Abnormal Axis Rotation on the ECG
- Identify the presence of non-concealed Wolff-Parkinson-White Syndrome on the ECG
- Identify Atrial and Ventricular Hypertrophy on the 12 Lead ECG

PM Session - 12 Lead ECG Identification of Acute Coronary Syndrome - (5.0 CE hours)

Upon completion of this program, participant will be able to:

- Recall conditions which comprise Acute Coronary Syndrome (ACS)
- Describe the components of the Quadrad of ACS, and their relevance to maximizing diagnostic accuracy in patients with ACS
- Recall Typical and Atypical Symptoms of ACS
- Recall techniques to aid in the ECG Diagnosis of ACS in the presence of Right and Left Bundle Branch Block QRS Patterns
- Identify 13 ECG Patterns associated with ACS
- Identify the Infarct-Related Artery in 10 common classifications of ST Segment Myocardial Infarction (STEMI)
- Recall complications to be expected in 10 common classifications of STEMI
- Recall diagnostic criteria for Non-STEMI and Unstable Angina
- Recall the etiology, pathophysiology and ECG abnormalities associated with Brugada Syndrome
- Identify Patient Assessment and ECG characteristics associated with Acute Pericarditis, Myocarditis, Hyperkalemia and Early Repolarization

The CATH LAB SERIES Presents:

12 LEAD ECG INTERPRETATION

IN

ACUTE CORONARY SYNDROME

With CASE STUDIES
from the

CARDIAC CATHETERIZATION LAB

By: Wayne Ruppert, CVT, NRP

Medical Editors: Humberto Coto, MD, FACP, FACC
Matthew Glover, MD, FACC
Xavier Prida, MD, FACC
Charles Sand, MD, FACEP, FACP

TARGET AUDIENCE:

This book is intended for medical professionals whom are competent in basic single lead ECG rhythm strip analysis, and desire to learn the basic concepts of 12 lead ECG interpretation, and to identify 12 lead ECG patterns associated with Acute Coronary Syndrome (ACS). It is not intended to teach “basic single-lead rhythm strip analysis.”

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ABOUT THE AUTHOR:



Wayne Ruppert is an Interventional Cardiovascular Technologist and Electrophysiology Technologist for the St. Joseph's Hospitals in Lutz and Tampa, Florida. Mr. Ruppert has logged over 10,000 cardiac catheterizations and electrophysiology studies since 1996. He has taught 12 Lead ECG Interpretation at St. Joseph's since 1997 and at York Hospital in York, PA since 2000.

In 1982, Mr. Ruppert learned the art of 12 Lead ECG Interpretation under the direction of the late Dr. Henry J.L. Marriott.

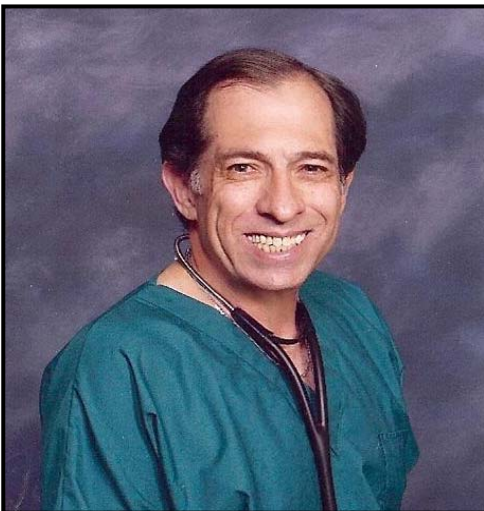
Mr. Ruppert is an accomplished national conference speaker, and has taught at multiple national conferences since 1989. He is certified as an Instructor in ACLS, PALS, and BCLS.

He began his career with the paramedic response squad operated by York Hospital in 1980, in York, PA. He has served as an EMT and Paramedic Instructor in Pennsylvania and Florida, and Field Training Officer / Director of Education for the Pinellas County, Florida EMS system. From 1991 to 1993, he served as the National Director of Quality Improvement for a publicly traded private ambulance company, where he developed, implemented and coordinated quality improvement and continuing education programs for 14 operations nationwide.

He is also a certified law enforcement officer, and serves as a Reserve Deputy for the Pasco County, Florida, Sheriff's Office.

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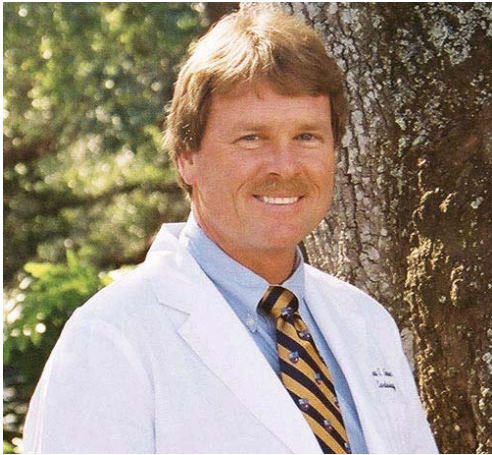
Humberto Coto, MD, FACP, FACC is board certified in Cardiovascular Medicine, Interventional Cardiology and Internal Medicine.

Dr. Coto received his undergraduate degree from Boise State College in 1972 and his Medical Degree from the Autonomous University of Guadalajara in 1976. He completed his internal medicine residency at East Tennessee State University. After completing his cardiology fellowship at University of Louisville School of Medicine, Louisville, Kentucky, he remained at University of Louisville as Co-Director of Interventional Cardiology and Assistant Professor of Cardiology.

He currently serves as the Chief of Cardiology at the St. Joseph's Hospital Heart Institute, and has served on the medical staff at the St. Joseph's Hospital Heart Institute as an Interventional Cardiologist since 1995.

Dr. Coto served as an Assistant Clinical Professor of Medicine for the University of South Florida between 1991 and 1996. He is also the past President of the Hillsborough County Medical Society.

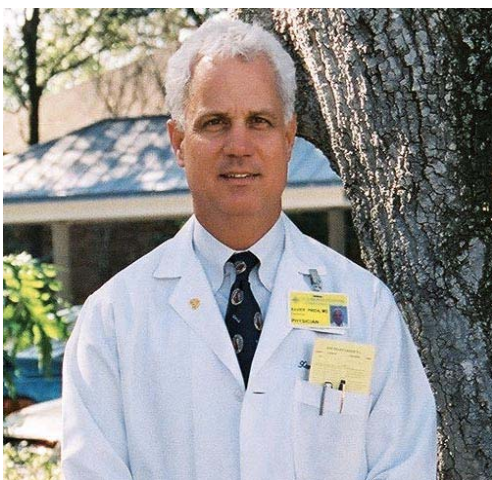
In addition to his medical pursuits, Dr. Coto serves the Hillsborough County Sheriff's Office as a volunteer officer and Field Training Officer, and has logged hundreds of hours on patrol in his community.



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He has served on the medical staff at the St. Joseph’s Hospital Heart Institute as an Interventional Cardiologist since 1987.



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Dr. Sand received his undergraduate degree from the University of Florida, and his Medical Degree from the University of Miami School of Medicine in 1985. He completed his internal medicine residency at the Emory University Affiliated Hospitals in 1988, and his emergency medicine residency at the University of Florida Health Science Center in Jacksonville, Florida .

He has served on the medical staff at the St. Joseph’s Hospital as an Emergency Physician since 1993.

Dr. Sand has served as the American Heart Association as the Florida-Puerto Rico AHA affiliate president and past National ACLS Florida representative. He participates in community, state, and national education and committee work on heart disease and stroke, and has served on and chaired a number of EMS and FCEP committees.

ECG INTERPRETATION WORKSHOPS

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HOW TO USE THIS BOOK:



If you wish to expediently master the essential concepts in this book:

- READ the sentences that are highlighted in this color.
- STUDY all graphic images and photographs.
- CORRECTLY ANSWER the REVIEW QUESTIONS at the end of each section. If you are not sure of the correct answer, the page where the information in the question originate is noted in parentheses. Turn to the page indicated and review the material.
- *Adherence to the above recommended practice will optimize your successful mastery of this material.*

A STATEMENT REGARDING PATIENT CONFIDENTIALITY:

As per HIPAA regulations, all information which could be used to identify specific patients has been eliminated or altered. Patient names, ID numbers, dates of service, and the institution providing the care have been eliminated. In many cases, patient age and gender have been changed, unless it alters the educational value of the case study.

A note from the author before you get started:

This work has evolved from a PowerPoint handout that I created for my 12 Lead ECG workshops, which I have been conducting since 1997. It encompasses everything I have learned from veteran medical practitioners (my mentors), books, medical journals, and from my own practical experience in the prehospital environment, emergency department, and from assisting with over 10,000 cardiac catheterizations and electrophysiology studies, spanning from 1978 to the current time.

Suffice to say, although this book represents *the best I that I have to offer* at the current time, I have no doubt that there are folks who will read this book, and will have thoughts they would like to share. From those of you who take the time to read my work, I appreciate your feedback, whether it's complimentary or "constructive." You can correspond with me at:

wayne@ECGTraining.org

Reviewer's Comments for:

"12 Lead ECG Interpretation in Acute Coronary Syndrome with Case Studies from the Cardiac Catheterization Lab" :

"Sir William Osler, Physician-in-Chief and Professor of Medicine for Johns Hopkins Hospital proclaimed, 'He who studies medicine without books sails an uncharted sea, but he who studies medicine without patients does not go to sea at all.' His wisdom, expressed nearly a century ago, could not ring truer in today's practice of medicine. An effective tool for educating today's physicians is the employment of case studies which combine both elements of Sir Osler's quote: academic literature and practical experience. This textbook provides both, and I highly recommend it for all residents and fellows in emergency medicine and cardiology."

Matthew Glover, MD, FACP, FACC

- Interventional Cardiologist
St. Joseph's Hospital
Tampa, Florida

"This outstanding book follows the patient from the field (EMS) to the ER to the cath lab, one of the few of its kind. Use of Cath Lab Case Studies provides a new and valuable perspective to learning 12 Lead ECG interpretation. I strongly recommend it for all health care providers who deal with cardiac patients."

Charles Sand, MD, FACEP, FACP

- Medical Director, Bayflite
- Medical Director, Hillsborough County Fire Rescue
- Past President, American Heart Association, Florida and Puerto Rico Affiliate
- Emergency Department Physician, St. Josephs' Hospital
Tampa, Florida

"ECG's are one of the few sophisticated diagnostic tests widely available to paramedics. This book arms paramedics with the tools to make the accurate and sophisticated assessments which are the foundation of exceptional patient care."

Mike Taigman

- Author, "Taigman's Advanced Cardiology in Plain English"
- Emergency Medical Services Educator and Conference Speaker and Lifelong Student
Sacramento, California

"I cannot imagine a critical care nurse who would not benefit from utilizing this book. A combination of highlighting essential information, lots of graphic images and providing review questions facilitates rapid, effective learning."

Walter Page Young, RN, BSN, CEN

- Education Specialist, Clinical Education
St. Joseph's Hospital
Tampa, Florida

"This book provides a valuable tool for nurses who desire to strengthen their ECG knowledge. I highly recommend it to all nurses who care for patients with Acute Coronary Syndrome."

Caroline "Nikki" Campbell, RN, MSN, CMSRN

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