

siemens ct scanner user manual

siemens ct scanner user manual serves as an essential resource for healthcare professionals and technicians who operate Siemens computed tomography (CT) systems. This manual provides comprehensive guidance on the installation, operation, maintenance, and troubleshooting of Siemens CT scanners. Understanding the detailed instructions within the user manual ensures optimal performance, patient safety, and accurate diagnostic results. Whether it involves familiarizing oneself with system components, mastering scanning protocols, or adhering to safety regulations, the Siemens CT scanner user manual is indispensable. This article will explore the key aspects covered in the manual, including system overview, operating instructions, safety guidelines, maintenance procedures, and troubleshooting tips. The content aims to enhance users' proficiency and confidence in handling Siemens CT technology effectively. Below is a structured outline of the topics addressed.

- Overview of Siemens CT Scanner
- Operating Instructions
- Safety Guidelines and Precautions
- Maintenance and Care
- Troubleshooting Common Issues

Overview of Siemens CT Scanner

The Siemens CT scanner user manual begins with a thorough overview of the system, including its design, components, and technical specifications. Understanding the scanner's architecture and capabilities is fundamental for effective operation and maintenance.

System Components

The manual details the primary components of Siemens CT scanners, such as the gantry, patient table, X-ray tube, detectors, and control console. Each component plays a critical role in image acquisition and processing.

- **Gantry:** The rotating frame that houses the X-ray tube and detectors.
- **Patient Table:** Supports and positions the patient during scanning procedures.

- **X-ray Tube:** Generates the X-rays necessary for imaging.
- **Detectors:** Capture the X-ray data transmitted through the patient's body.
- **Control Console:** Interface used by operators to set parameters and initiate scans.

Technical Specifications

The manual outlines key technical details, such as voltage ranges, slice thickness options, scanning speed, and image reconstruction capabilities. These specifications enable users to select appropriate settings tailored to diagnostic requirements.

Operating Instructions

Operating a Siemens CT scanner requires adherence to precise procedures to ensure image quality and patient safety. The user manual provides step-by-step instructions for system startup, patient preparation, scan execution, and data management.

System Startup and Initialization

Before scanning, the manual instructs users to perform system checks, power on the equipment, and initialize the software. This process includes verifying system readiness and calibrating components as necessary.

Patient Setup and Positioning

Proper patient positioning is critical to obtaining accurate images. The manual specifies guidelines for aligning the patient on the table, using immobilization devices, and selecting scan regions to maximize diagnostic value.

Scan Protocol Selection

Users are guided in choosing appropriate scanning protocols based on clinical indications. The manual details parameters such as slice thickness, contrast usage, rotation time, and scanning mode (e.g., axial or helical).

Image Acquisition and Reconstruction

The manual describes how to initiate image acquisition, monitor scan progress, and perform image reconstruction using the system's software tools. It emphasizes the importance of optimizing image quality through parameter adjustments.

Data Storage and Transfer

Instructions are provided for saving images securely within the system and exporting data to external devices or Picture Archiving and Communication Systems (PACS) for further analysis and reporting.

Safety Guidelines and Precautions

Ensuring safety during CT scanning is paramount. The Siemens CT scanner user manual highlights essential safety protocols to protect patients, operators, and equipment from potential hazards.

Radiation Safety

The manual emphasizes minimizing radiation exposure by following the ALARA (As Low As Reasonably Achievable) principle. It advises on using appropriate shielding, limiting scan length, and adjusting exposure parameters.

Patient Safety

Guidance is provided on screening patients for contraindications, managing contrast media administration, and monitoring patient condition during and after the scan. Proper communication and emergency preparedness are also stressed.

Operator Safety

Operators are instructed to stay behind protective barriers during scans, use personal dosimeters to monitor radiation exposure, and adhere to institutional safety protocols to reduce occupational risks.

Maintenance and Care

Regular maintenance ensures the Siemens CT scanner operates reliably and prolongs its service life. The user manual outlines routine and preventive maintenance tasks to maintain system integrity and performance.

Daily and Weekly Checks

The manual recommends daily inspections of system cleanliness, mechanical parts, and software status. Weekly tasks may include more detailed calibration procedures and verification of image quality standards.

Component Cleaning and Replacement

Instructions for cleaning the gantry, patient table, and control console are provided, along with guidance on replacing consumables such as filters or protective covers to prevent equipment degradation.

Software Updates and Calibration

Maintaining up-to-date software is crucial for optimal functionality. The manual details procedures for installing updates and performing routine calibration to ensure accurate imaging and system stability.

Troubleshooting Common Issues

The Siemens CT scanner user manual contains a troubleshooting section designed to help users identify and resolve frequent problems quickly and effectively.

System Startup Failures

Common causes for startup issues include power supply problems, hardware malfunctions, or software errors. The manual provides diagnostic steps to isolate and address these problems.

Image Quality Problems

Users are guided on troubleshooting artifacts, noise, or poor resolution in images. Recommendations include checking calibration, verifying scan parameters, and inspecting hardware components.

Operational Errors and Alarms

The manual explains various system error codes and alarms, offering corrective actions to restore normal operation and prevent equipment damage.

Contacting Technical Support

When issues cannot be resolved through standard troubleshooting, the manual advises on how to document problems and communicate effectively with Siemens technical support services for advanced assistance.

Frequently Asked Questions

Where can I download the Siemens CT scanner user manual?

You can download the Siemens CT scanner user manual from the official Siemens Healthineers website or contact their customer support for the specific model's manual.

What information is typically included in a Siemens CT scanner user manual?

A Siemens CT scanner user manual usually includes setup instructions, operational guidelines, safety precautions, maintenance procedures, troubleshooting tips, and technical specifications.

How can I troubleshoot common errors using the Siemens CT scanner user manual?

The user manual provides a troubleshooting section that lists common error codes, their meanings, and step-by-step solutions to resolve issues with the Siemens CT scanner.

Is the Siemens CT scanner user manual available in multiple languages?

Yes, Siemens often provides user manuals in multiple languages to accommodate international users; you can select your preferred language on their official website or in the manual download section.

Can I get training resources along with the Siemens CT scanner user manual?

Siemens Healthineers offers training resources and tutorials in addition to the user manual, which can be accessed through their official website or by contacting their support team for comprehensive user education.

Additional Resources

1. *Siemens CT Scanner Operation and Maintenance Guide*

This comprehensive manual covers the essential operational procedures and routine maintenance tasks for Siemens CT scanners. It is designed for technicians and radiologists who want to ensure optimal performance and longevity of their equipment. The guide includes troubleshooting tips, safety protocols, and calibration instructions to maintain image quality.

2. *Understanding Siemens CT Scanner Technology*

This book provides an in-depth explanation of the technological principles behind Siemens CT scanners. It explores the hardware components, software systems, and imaging techniques used in modern CT imaging. Readers will gain a solid foundation in how Siemens scanners function, which is useful for both users and technical support staff.

3. *Siemens CT Scanner User Manual: A Practical Approach*

Focused on hands-on usage, this manual offers step-by-step instructions for operating Siemens CT scanners effectively. It includes detailed walkthroughs of user interface navigation, patient positioning, and scan protocol customization. The practical tips help users maximize the scanner's capabilities while ensuring patient safety.

4. *Advanced Troubleshooting for Siemens CT Scanners*

Targeted at service engineers and technical specialists, this book delves into diagnosing and resolving complex issues with Siemens CT scanners. It covers common error codes, hardware failures, and software glitches. The text also provides preventive maintenance strategies to minimize downtime.

5. *Siemens CT Imaging Protocols and Best Practices*

This guide outlines standardized imaging protocols tailored for Siemens CT scanners to achieve consistent and high-quality diagnostic images. It discusses parameter settings for various clinical applications, including head, chest, and abdominal scans. The book emphasizes radiation dose optimization and patient care.

6. *Siemens SOMATOM CT Scanner: Installation and Setup Manual*

A detailed resource for the installation and initial configuration of Siemens SOMATOM CT scanners. It covers site preparation, hardware assembly, software installation, and safety checks. This manual is essential for biomedical engineers and facility managers overseeing new scanner deployments.

7. *Radiation Safety and Compliance with Siemens CT Scanners*

This book addresses radiation protection principles specific to Siemens CT scanners. It explains regulatory requirements, dose measurement techniques, and safety features integrated into Siemens systems. The content helps healthcare providers maintain compliance and protect patients and staff.

8. *Siemens CT Scanner Software User Guide*

Focusing on the software interface of Siemens CT scanners, this guide helps users navigate imaging software, data management, and post-processing tools.

It includes tutorials on image reconstruction, reporting, and system updates. The book is ideal for radiology technologists and IT personnel.

9. *Clinical Applications of Siemens CT Scanners*

This text explores the clinical utility of Siemens CT scanners across various medical specialties. It presents case studies, imaging findings, and diagnostic strategies facilitated by Siemens technology. The book aids clinicians in leveraging CT imaging for improved patient outcomes.

[Siemens Ct Scanner User Manual](#)

Siemens CT Scanner User Manual: Master Your System for Optimal Imaging

Unlock the full potential of your Siemens CT scanner and elevate your diagnostic capabilities. Are you struggling to maximize the efficiency and image quality of your Siemens CT scanner? Do you find the official manuals overwhelming and difficult to navigate? Are you losing valuable time searching for specific protocols or troubleshooting technical issues? This comprehensive guide will equip you with the knowledge and practical skills to confidently operate and maintain your Siemens CT scanner, ensuring optimal performance and accurate diagnoses.

This ebook, *The Siemens CT Scanner Mastery Guide*, will empower you to:

- Reduce scan times and improve workflow efficiency.
- Optimize image quality for superior diagnostic accuracy.
- Master advanced imaging techniques and protocols.
- Effectively troubleshoot common technical issues.
- Extend the lifespan and maintain the optimal performance of your scanner.

Contents:

- Introduction: Understanding the Siemens CT Scanner Ecosystem
- Chapter 1: Basic Operation and System Navigation: A Step-by-Step Guide
- Chapter 2: Image Acquisition Protocols: Mastering Different Scan Types
- Chapter 3: Image Reconstruction and Post-Processing Techniques
- Chapter 4: Advanced Imaging Techniques: Cardiac CT, CTA, and more
- Chapter 5: Troubleshooting Common Errors and Maintenance Procedures
- Chapter 6: Radiation Safety and Patient Management Protocols
- Chapter 7: Quality Assurance and Quality Control Procedures
- Conclusion: Continual Learning and Staying Current with Siemens Technology

The Siemens CT Scanner Mastery Guide: A Comprehensive User Manual

Introduction: Understanding the Siemens CT Scanner Ecosystem

The Siemens family of CT scanners represents a cutting-edge technology in medical imaging. Understanding the intricacies of your specific model is paramount to achieving optimal performance and accurate diagnoses. This introduction serves as an overview, familiarizing you with the system's architecture, key components, and the overall workflow. We'll touch upon the different software versions and their variations, emphasizing the importance of staying updated with the latest software releases for access to enhanced features and improved performance. We'll also delve into the importance of regular maintenance and preventative measures to prolong the lifespan of your valuable equipment. This foundation will prepare you for the detailed explorations in subsequent chapters.

Chapter 1: Basic Operation and System Navigation: A Step-by-Step Guide

This chapter provides a practical, step-by-step guide to the basic operation of your Siemens CT scanner. We will cover power-up procedures, system initialization, patient setup, and the use of the user interface. Clear, concise instructions will walk you through each step, accompanied by high-quality images and diagrams. We'll address commonly encountered challenges during initial setup and provide troubleshooting tips for resolving minor issues. Specific attention will be given to patient positioning and the importance of accurate alignment for optimal image quality. This chapter ensures you're comfortable navigating the scanner's controls and preparing for the acquisition process.

Chapter 2: Image Acquisition Protocols: Mastering Different Scan Types

This core chapter focuses on mastering image acquisition protocols for various clinical applications. We'll explore the different scan modes (axial, helical, multislice), explaining their benefits and limitations. We'll cover the crucial parameters that need adjusting for each scan type, including kVp, mA, slice thickness, pitch, and rotation time. This section will provide detailed instructions on how to

select the appropriate protocol for different anatomical regions and clinical indications. We'll analyze the impact of each parameter on image quality, radiation dose, and scan time, empowering you to optimize your protocols for specific needs. Examples of standard protocols for common examinations (head, chest, abdomen, etc.) will be provided.

Chapter 3: Image Reconstruction and Post-Processing Techniques

Image reconstruction is a critical step in CT scanning that transforms raw data into diagnostic images. This chapter delves into the different reconstruction algorithms available on your Siemens system, explaining their strengths and weaknesses. We'll cover the essential parameters influencing image quality during the reconstruction phase, such as kernel selection, iterative reconstruction techniques (IR), and noise reduction algorithms. We'll then explore various post-processing techniques, including windowing, leveling, MPR, 3D reconstructions (VR), and other advanced visualization tools, showing how to optimize images for optimal diagnostic interpretation. Emphasis will be placed on understanding the impact of different settings on image quality and interpretation.

Chapter 4: Advanced Imaging Techniques: Cardiac CT, CTA, and more

This chapter ventures into the realm of advanced imaging techniques, starting with cardiac CT angiography (CTA). We'll discuss the specific protocols and considerations for acquiring high-quality cardiac images, emphasizing the importance of proper patient preparation, ECG gating, and image reconstruction techniques. We'll then extend the discussion to other advanced applications like CTA for peripheral arteries and other applications including perfusion studies. We'll explore the specific challenges and techniques required for each application, highlighting best practices and potential pitfalls to avoid. The chapter will be rich in practical examples and illustrations.

Chapter 5: Troubleshooting Common Errors and Maintenance Procedures

This chapter tackles practical troubleshooting. We'll address common technical errors, providing step-by-step guidance for diagnosis and resolution. We'll cover issues related to image quality, system malfunctions, and hardware problems. We will also discuss preventative maintenance procedures to extend the lifespan of your scanner and minimize downtime. This includes regular calibration checks, cleaning protocols, and routine maintenance tasks. This chapter empowers you to handle minor issues independently, reducing reliance on external technical support and minimizing system downtime.

Chapter 6: Radiation Safety and Patient Management Protocols

Patient safety and radiation protection are paramount. This chapter outlines the essential radiation safety protocols necessary when operating a Siemens CT scanner. We'll discuss ALARA principles (As Low As Reasonably Achievable), radiation dose optimization techniques, and the importance of patient shielding. We will also cover patient preparation procedures, including informed consent and appropriate instructions for different patient populations (pediatric, geriatric, etc.). Furthermore, we will detail effective communication strategies with patients to ensure comfort and cooperation during the scanning process.

Chapter 7: Quality Assurance and Quality Control Procedures

Maintaining high image quality and diagnostic accuracy is crucial. This chapter details the implementation of quality assurance (QA) and quality control (QC) procedures for your Siemens CT scanner. We'll cover routine phantom testing, image quality assessment metrics, and documentation procedures. We'll also discuss how to interpret QA results and take corrective actions when necessary to ensure ongoing compliance with regulatory standards and maintain optimal performance. We'll also explore the importance of regular calibration checks and the implications of non-compliance.

Conclusion: Continual Learning and Staying Current with Siemens Technology

The field of medical imaging is constantly evolving. This concluding chapter underscores the importance of continuous learning and staying current with the latest advances in Siemens CT scanner technology. We'll provide resources for accessing the latest updates, software patches, and training materials. We'll discuss the benefits of attending workshops, participating in professional organizations, and engaging with online communities to enhance your skills and knowledge.

FAQs:

1. What Siemens CT scanner models does this manual cover? The principles are applicable to many Siemens models but specific details may vary; consult the model-specific documentation for precise parameters.
2. Is this manual suitable for beginners? Yes, it starts with the basics and progressively covers more advanced topics.
3. What software versions are supported? While the core concepts apply broadly, certain features might vary across software versions. The latest updates are recommended.

4. Does it cover all Siemens CT scanner features? The guide focuses on core functionality and frequently used features; specific niche features may not be exhaustively covered.
5. What if I encounter a problem not addressed in the manual? Consult Siemens' official documentation or contact their support team.
6. How often should I perform quality control checks? Follow Siemens' recommendations and regulatory guidelines for your specific model and location.
7. Is there a focus on radiation safety? Yes, there is a dedicated chapter emphasizing radiation safety protocols.
8. What if I'm unfamiliar with medical imaging terminology? The manual strives for clarity, but some prior knowledge of medical terms might be beneficial.
9. Can I use this manual for other brands of CT scanners? No, this manual is specifically designed for Siemens CT scanners; operating procedures differ significantly across brands.

Related Articles:

1. Siemens SOMATOM Definition AS User Manual: A deep dive into the specific features and functionalities of the SOMATOM Definition AS CT scanner.
2. Siemens CT Scanner Image Quality Optimization: Tips and techniques to enhance image quality in various clinical scenarios.
3. Troubleshooting Siemens CT Scanner Errors: A comprehensive guide to resolving common errors and malfunctions.
4. Advanced Reconstruction Techniques in Siemens CT: Explore the nuances of iterative reconstruction and other advanced algorithms.
5. Radiation Dose Reduction in Siemens CT Scanning: Strategies and protocols for minimizing radiation exposure to patients.
6. Cardiac CT Angiography on Siemens CT Scanners: Detailed protocol and interpretation guidelines for cardiac CTA.
7. Siemens CT Scanner Maintenance and Calibration: A practical guide for preventative maintenance and routine calibration checks.
8. Comparison of Siemens CT Scanner Models: A comparative analysis of different Siemens CT scanner models and their capabilities.
9. The Role of AI in Siemens CT Image Analysis: An exploration of artificial intelligence applications in enhancing CT image analysis.

siemens ct scanner user manual: Radiation Dose from Multidetector CT Denis Tack, Mannudeep K. Kalra, Pierre Alain Gevenois, 2012-06-05 Computed tomography (CT) is a powerful technique providing precise and confident diagnoses. The burgeoning use of CT has resulted in an exponential increase in collective radiation dose to the population. Despite investigations supporting the use of lower radiation doses, surveys highlight the lack of proper understanding of CT parameters that affect radiation dose. Dynamic advances in CT technology also make it important to explain the latest dose-saving strategies in an easy-to-comprehend manner. This book aims to review all aspects of the radiation dose from CT and to provide simple rules and tricks for radiologists and radiographers that will assist in the appropriate use of CT technique. The second edition includes a number of new chapters on the most up-to-date strategies and technologies for radiation dose reduction while updating the outstanding contents of the first edition. Vendor perspectives are included, and an online image gallery will also be available to readers.

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Tomography International Atomic Energy Agency, 2012 This publication presents a harmonized approach to quality assurance in the field of computed tomography applied to both diagnostics and therapy. It gives a careful analysis of the principles and specific instructions that can be used for a quality assurance programme for optimal performance and reduced patient dose in diagnostic radiology. In some cases, radiotherapy programmes are making a transition from 2-D to 3-D radiotherapy, a complex process which critically depends on accurate treatment planning. In this respect, the authors also provide detailed information about the elements needed for quality assurance testing, including those relating to accurate patient characterization as needed for radiotherapy treatment planning.

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pre-clinical and clinical imaging applications.

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siemens ct scanner user manual: World Congress on Medical Physics and Biomedical Engineering September 7 - 12, 2009 Munich, Germany Olaf Dössel, Wolfgang C. Schlegel, 2010-01-01 Present Your Research to the World! The World Congress 2009 on Medical Physics and Biomedical Engineering – the triennial scientific meeting of the IUPESM - is the world's leading forum for presenting the results of current scientific work in health-related physics and technologies to an international audience. With more than 2,800 presentations it will be the biggest conference in the fields of Medical Physics and Biomedical Engineering in 2009! Medical physics, biomedical engineering and bioengineering have been driving forces of innovation and progress in medicine and healthcare over the past two decades. As new key technologies arise with significant potential to open new options in diagnostics and therapeutics, it is a multidisciplinary task to evaluate their benefit for medicine and healthcare with respect to the quality of performance and therapeutic output. Covering key aspects such as information and communication technologies, micro- and nanosystems, optics and biotechnology, the congress will serve as an inter- and multidisciplinary platform that brings together people from basic research, R&D, industry and medical application to discuss these issues. As a major event for science, medicine and technology the congress provides a comprehensive overview and in-depth, first-hand information on new developments, advanced technologies and current and future applications. With this Final Program we would like to give you an overview of the dimension of the congress and invite you to join us in Munich! Olaf Dössel Congress President Wolfgang C.

siemens ct scanner user manual: 4D Modeling and Estimation of Respiratory Motion for Radiation Therapy Jan Ehrhardt, Cristian Lorenz, 2013-05-30 Respiratory motion causes an important uncertainty in radiotherapy planning of the thorax and upper abdomen. The main

objective of radiation therapy is to eradicate or shrink tumor cells without damaging the surrounding tissue by delivering a high radiation dose to the tumor region and a dose as low as possible to healthy organ tissues. Meeting this demand remains a challenge especially in case of lung tumors due to breathing-induced tumor and organ motion where motion amplitudes can measure up to several centimeters. Therefore, modeling of respiratory motion has become increasingly important in radiation therapy. With 4D imaging techniques spatiotemporal image sequences can be acquired to investigate dynamic processes in the patient's body. Furthermore, image registration enables the estimation of the breathing-induced motion and the description of the temporal change in position and shape of the structures of interest by establishing the correspondence between images acquired at different phases of the breathing cycle. In radiation therapy these motion estimations are used to define accurate treatment margins, e.g. to calculate dose distributions and to develop prediction models for gated or robotic radiotherapy. In this book, the increasing role of image registration and motion estimation algorithms for the interpretation of complex 4D medical image sequences is illustrated. Different 4D CT image acquisition techniques and conceptually different motion estimation algorithms are presented. The clinical relevance is demonstrated by means of example applications which are related to the radiation therapy of thoracic and abdominal tumors. The state of the art and perspectives are shown by an insight into the current field of research. The book is addressed to biomedical engineers, medical physicists, researchers and physicians working in the fields of medical image analysis, radiology and radiation therapy.

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Cancer Imaging, Volume 1 [ISBN: 978-0-12-370468-9] sells separately for \$189 and also as part of a two volume set [ISBN: 978-0-12-374212-4] for \$299. • Concentrates on the application of imaging technology to the diagnosis and prognosis of prostate, colorectal, ovarian, gastrointestinal, and bone cancers • Addresses relationship between radiation dose and image quality • Discusses the role of molecular imaging in identifying changes for the emergence and progression of cancer at the cellular and/or molecular levels

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siemens ct scanner user manual: Quantitative Analysis in Nuclear Medicine Imaging Habib Zaidi, 2006-07-11 This book provides a review of image analysis techniques as they are applied in the field of diagnostic and therapeutic nuclear medicine. Driven in part by the remarkable sophistication of nuclear medicine instrumentation and - crease in computing power and its ready and inexpensive availability, this is a relatively new yet rapidly expanding field. Likewise, although the use of nuclear imaging for diagnosis and therapy has origins dating back almost to the pioneering work of Dr G. de Hevesy, quantitative imaging has only recently emerged as a promising approach for diagnosis and therapy of many diseases. An effort has, therefore, been made to place the reviews provided in this book in a broader context. The effort to do this is reflected by the inclusion of introductory chapters that address basic principles of nuclear medicine instrumentation and dual-modality imaging, followed by overview of issues that are closely related to quantitative nuclear imaging and its potential role in diagnostic and therapeutic applications. A brief overview of each chapter is provided below. Chapter 1 presents a general overview of nuclear medicine imaging physics and instrumentation including planar scintigraphy, single-photon emission computed tomography (SPECT) and positron emission tomography (PET). Nowadays, patients' diagnosis and therapy is rarely done without the use of imaging technology. As such, imaging considerations are incorporated in almost every chapter of the book. The development of dual-modality - aging systems is an emerging research field, which is addressed in chapter 2.

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siemens ct scanner user manual: Practical FDG Imaging Dominique Delbeke, William H. Martin, James A. Patton, Martin P. Sandler, 2007-05-28 PRACTICAL FDG IMAGING provides the reader with a reference source of cases with FDG images obtained both on dedicated PET tomographs and hybrid scintillation cameras. The cases are presented in thorough depth so that they are of value to both specialists and residents in training who need to learn the indications and interpretations of FDG images and the advantages and limitations of hybrid scintillation cameras compared to dedicated PET tomographs. This book is ideal for nuclear and radiology medicine residents, as well as those practitioners who need to become familiar with this technology. The first part of the book concentrates on the technical aspects of FDG imaging. Part two is devoted to the clinical applications in the fields of neurology, cardiology and oncology.

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Fang-Fang Yin, PhD, is Chief of the Division of Radiation Physics, Professor of Radiation Oncology, and Director of the Medical Physics program at Duke University.

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