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Defining the Medical Imaging Requirements for a Rural Health Center

Springer **This book presents the patient management challenges that rural health centers face, and establishes the criteria for the type of medical imaging services that should be available in such facilities. To make the work of the center's health practitioners more effective and efficient, the book assesses what health conditions may require medical attention in those centers. Information is provided on how to use basic imaging modalities, such as radiography and ultrasound, emphasizing the need for thoughtful service planning, careful equipment and imaging protocol selection, continuous staff training, and the implementation of quality control programs. The book is also a valuable resource for those physicians, medical physicists and service engineers who provide virtual and physical consultations to meet these needs. Rural health centers are established to prevent patients from being forced to travel to distant urban medical facilities. To manage patients properly, rural health centers should be part of regional and more complete systems of medical health care installations in the country on the basis of a referral and counter-referral program. Thus, the centers should have the infrastructure needed to transport patients to urban hospitals when they need more complex health care. The coordination of all the activities is possible only if rural health centers are led by strong and dedicated managers.**

Handbook of Radiotherapy Physics

Theory and Practice, Second Edition, Two Volume Set

CRC Press **From the essential background physics and radiobiology to the latest imaging and treatment modalities, the updated second edition of Handbook of Radiotherapy Physics: Theory & Practice covers all aspects of the subject. In Volume 1, Part A includes the Interaction of Radiation with Matter (charged particles and photons) and the Fundamentals of Dosimetry with an extensive section on small-field physics. Part B covers Radiobiology with increased emphasis on hypofractionation. Part C describes Equipment for Imaging and Therapy including MR-guided linear accelerators. Part D on Dose Measurement includes chapters on ionisation chambers, solid-state detectors, film and gels, as well as a detailed description and explanation of Codes of Practice for Reference Dose Determination including detector correction factors in small fields. Part E describes the properties of Clinical (external) Beams. The various methods (or 'algorithms') for Computing Doses in Patients irradiated by photon, electron and proton beams are described in Part F with increased emphasis on Monte-Carlo-based and grid-based deterministic algorithms. In Volume 2, Part G covers all aspects of Treatment Planning including CT-, MR- and Radionuclide-based patient imaging, Intensity-Modulated Photon Beams, Electron and Proton Beams, Stereotactic and Total Body Irradiation and the use of the dosimetric and radiobiological metrics TCP and NTCP for plan evaluation and optimisation. Quality Assurance fundamentals with application to equipment and processes are covered in Part H. Radionuclides, equipment and methods for Brachytherapy and Targeted Molecular Therapy are covered in Parts I and J, respectively. Finally, Part K is devoted to Radiation Protection of the public, staff and patients. Extensive tables of Physical Constants, Photon, Electron and Proton Interaction data, and typical Photon Beam and Radionuclide data are given in Part L. Edited by recognised authorities in the field, with individual chapters written by renowned specialists, this second edition of Handbook of Radiotherapy Physics provides the essential up-to-date theoretical and practical knowledge to deliver safe and effective radiotherapy. It will be of interest to clinical and research medical physicists, radiation oncologists, radiation technologists, PhD and Master's students.**

Radiography and Radiology for Dental Care Professionals E-Book

Elsevier Health Sciences **Radiography and Radiology for Dental Care Professionals E-Book**

Practical Medical Physics

A Guide to the Work of Hospital Clinical Scientists

CRC Press **This is the first all-encompassing textbook designed to support trainee clinical scientists in medical physics as they start work in a hospital setting whilst undertaking an academic master's course. Developed by practising physicists and experienced academics using their experience of teaching trainee medical physicists, this book provides an accessible introduction to the daily tasks that clinical scientists perform in the course of their work. It bridges the gap between theory and practice, making the book also suitable for advanced undergraduate and graduate students in other disciplines studying modules on medical physics, including those who are considering a career in medical physics through applying to the NHS Scientist Training Programme (STP). Features: Provides an accessible introduction to practical medical physics within a hospital environment Maps to the course content of the Scientist Training Programme in the NHS Acts as a complement to the academic books often recommended for medical physics courses**

Clinical Medical Imaging Physics

Current and Emerging Practice

John Wiley & Sons **Clinical Imaging Physics: Current and Emerging Practice is the first text of its kind—a comprehensive reference work covering all imaging modalities in use in clinical medicine today. Destined to become a classic in the field, this book provides state-of-practice descriptions for each imaging modality, followed by special sections on new and emerging applications, technologies, and practices. Authored by luminaries in the field of medical physics, this resource is a sophisticated, one-volume handbook to a fast-advancing field that is becoming ever more central to contemporary clinical medicine. Summarizes the current state of clinical imaging physics in one-volume, with a focus on emerging technologies and applications Provides comprehensive coverage of all key clinical imaging modalities, taking into account the new realities in healthcare practice Features a strong focus on clinical application of principles and technology, now and in the future Contains authoritative text compiled by world-renowned editors and contributors responsible for guiding the development of the field Practicing radiologists and medical physicists will appreciate Clinical Imaging Physics as a peerless everyday reference work. Additionally, graduate students and residents in medical physics and radiology will find this book essential as they study for their board exams.**

Essentials of Dental Radiography and Radiology E-Book

Elsevier Health Sciences **Essentials of Dental Radiography and Radiology E-Book**

Towards Safer Radiotherapy

Basic Science of PET Imaging

Springer **This book offers a wide-ranging and up-to-date overview of the basic science underlying PET and its preclinical and clinical applications in modern medicine. In addition, it provides the reader with a sound understanding of the scientific principles and use of PET in routine practice and biomedical imaging research. The opening sections address the fundamental physics, radiation safety, CT scanning dosimetry, and dosimetry of PET radiotracers, chemistry and regulation of PET radiopharmaceuticals, with information on**

labeling strategies, tracer quality control, and regulation of radiopharmaceutical production in Europe and the United States. PET physics and instrumentation are then discussed, covering the basic principles of PET and PET scanning systems, hybrid PET/CT and PET/MR imaging, system calibration, acceptance testing, and quality control. Subsequent sections focus on image reconstruction, processing, and quantitation in PET and hybrid PET and on imaging artifacts and correction techniques, with particular attention to partial volume correction and motion artifacts. The book closes by examining clinical applications of PET and hybrid PET and their physiological and/or molecular basis in conjunction with technical foundations in the disciplines of oncology, cardiology and neurology, PET in pediatric malignancy and its role in radiotherapy treatment planning. Basic Science of PET Imaging will meet the needs of nuclear medicine practitioners, other radiology specialists, and trainees in these fields.

Clark's Positioning in Radiography 13E

CRC Press **First published in 1939, Clark's Positioning in Radiography is the preeminent text on positioning technique for diagnostic radiographers.Whilst retaining the clear and easy-to-follow structure of the previous edition, the thirteenth edition includes a number of changes and innovations in radiographic technique. The text has been extensively updated**

Essentials of Dental Radiography and Radiology

Elsevier Health Sciences **New edition of a popular textbook of dental radiography and radiology for undergraduate and post-graduate dental students and general dental practitioners The volume is now available with an all new online self assessment questions and answers module and an online, regularly updated, summary of the current UK ionising radiation legislation and guidance on good practice for all dental practitioners as well as a summary of the latest UK guidance in relation to the use of Cone Beam CT (CBCT) equipment. The self assessment questions have been specially prepared for each of the 32 Chapters to enable students to assess their own knowledge and understanding as they prepare for examinations. These include a mixture of single best answer and multiple correct answer questions, drag and drop identification of radiological anatomy as well as new examples of various pathological conditions to enable practice of diagnostic skills. Provides a comprehensive account of the radiology and radiography topics usually examined at undergraduate and postgraduate level Clear and accessible approach to the subject makes learning especially easy More than 1100 illustrations - many of them updated - present clinical, diagnostic and practical information in an accessible manner Contains recent classifications and advanced imaging modalities including cone beam CT imaging techniques An online, regularly updated, summary of the current UK ionising radiation legislation and guidance on good practice for all dental practitioners as well as a summary of the latest UK guidance in relation to the use of Cone Beam CT (CBCT) equipment An all new online self assessment questions and answers module. Questions have been specially prepared for each of the 32 Chapters to enable students to assess their own knowledge and understanding as they prepare for examinations. These include a mixture of single best answer and multiple correct answer questions, drag and drop identification of radiological anatomy as well as new examples of various pathological conditions to enable practice of diagnostic skills. Includes a new chapter on cone beam technology and numerous examples of advanced imaging throughout the book**

Radiography and Radiology for Dental Care Professionals

Elsevier Health Sciences **This volume continues to provide a useful reference manual which is ideal for all Dental Care Professionals. Offering a clear, easy-to-follow, comprehensive account of all aspects of dental radiography perfectly tailored to the needs of DCPs, this book is an important resource that renders it essential reading, particularly for those undertaking examinations in dental radiography. Clear and accessible approach to the subject makes learning especially easy More than 600 tables and illustrations present clinical, diagnostic and practical information in an easy-to-access manner Led by the best known UK textbook author in the subject area who has been heavily involved in the British Dental Association's highly successful on-line course in dental radiography Contains what the Dental Care Professional needs to know and no more, i.e. basic principles of background science, practical details of radiography and an elementary account of radiological interpretation An all new online self assessment questions and answers module Includes a new chapter on cone beam technology Fully updated throughout with many new tables and images**

Introduction to Medical Physics

CRC Press **This textbook provides an accessible introduction to the basic principles of medical physics, the applications of medical physics equipment, and the role of a medical physicist in healthcare. Introduction to Medical Physics is designed to support undergraduate and graduate students taking their first modules on a medical physics course, or as a dedicated book for specific modules such as medical imaging and radiotherapy. It is ideally suited for new teaching schemes such as Modernising Scientific Careers and will be invaluable for all medical physics students worldwide. Key features: Written by an experienced and senior team of medical physicists from highly respected institutions The first book written specifically to introduce medical physics to undergraduate and graduate physics students Provides worked examples relevant to actual clinical situations**

Comprehensive Brachytherapy

Physical and Clinical Aspects

CRC Press **Modern brachytherapy is one of the most important oncological treatment modalities requiring an integrated approach that utilizes new technologies, advanced clinical imaging facilities, and a thorough understanding of the radiobiological effects on different tissues, the principles of physics, dosimetry techniques and protocols, and clinical expertise. A complete overview of the field, Comprehensive Brachytherapy: Physical and Clinical Aspects is a landmark publication, presenting a detailed account of the underlying physics, design, and implementation of the techniques, along with practical guidance for practitioners. Bridging the gap between research and application, this single source brings together the technological basis, radiation dosimetry, quality assurance, and fundamentals of brachytherapy. In addition, it presents discussion of the most recent clinical practice in brachytherapy including prostate, gynecology, breast, and other clinical treatment sites. Along with exploring new clinical protocols, it discusses major advances in imaging, robotics, dosimetry, Monte Carlo-based dose calculation, and optimization.**

Dose, Benefit, and Risk in Medical Imaging

CRC Press **This timely overview of dose, benefit, and risk in medical imaging explains to readers how to apply this information for informed decision-making that improves patient outcomes. The chapters cover patient and physician perspectives, referral guidelines, appropriateness criteria, and quantifying medical imaging benefits. The authors have included essential discussion about radiologic physics in medical imaging, fundamentals of dose and image quality, risk assessment, and techniques for optimization and dose reduction. The book highlights practical implementation aspects with useful case studies and checklists for treatment planning. Clinicians, students, residents, and professionals in medical physics, biomedical engineering, radiology, oncology, and allied disciplines will find this book an essential resource with the following key features: Discusses risk, benefit, dose optimization, safety, regulation, radiological protection, and shared & informed decision-making. Covers regulatory oversight by government agencies, manufacturers, and societies. Highlights best practices for improving patient safety and outcomes. Gives guidelines on doses associated with specific procedures.**

Medical Imaging in Clinical Trials

Springer Science & Business Media **In the last few years the use of medical imaging has increased exponentially in routine clinical practice. This has been reflected in a rapidly increasing use of medical imaging in clinical trials, through all phases. More recently this has culminated in a number of inter-disciplinary meetings with the various stake holders, including the FDA. Changes in the regulatory process has resulted, when it comes to the submission of data to the FDA, in a therapeutic agent where one or more of the trial end-points is the assessment of a radiological end-point. No longer is it sufficient to have the images read by the local investigator site. The FDA has also identified Medical Imaging as one of the key 6 points in the Critical Path initiative which was launched in 2004. This puts a keen focus on the role of imaging and the need to clearly identify and understand this aspect of clinical trials. As the pharmaceutical, biotech and medical device industry continues to identify ways to improve and speed up product development, medical imaging plays a more significant role. An understanding of the methodology and the metrics is therefore required but difficult to ascertain in one easy to read volume for individuals entering this field. This book will therefore fulfill this void, be it for the pharmaceutical personnel from medical director to monitor, or the Principal Investigator who is having to understand the**

complexities of the imaging and why it is having to be sent off-site for a 'central read.'

Fundamentos de radiología dental

Elsevier Health Sciences **Nueva edición del texto de referencia y de primera adopción en el campo de la radiología dental, que se presenta con un alto grado de estructuración y de fácil comprensión. Uno de sus valores añadidos es que cubre tanto la tecnología subyacente a la obtención de una imagen como su interpretación. El texto se posiciona como un “must have” para el estudiante de Odontología, ya que durante toda su práctica profesional deberá ser capaz de interpretar imágenes de radiodiagnóstico tanto para diagnosticar como para planear un posterior tratamiento. En cuanto a las principales novedades cabe destacar que, por primera vez, se ha incorporado el color y a nivel conceptual la inclusión de objetivos de aprendizaje al inicio de capítulo, la incorporación de apartados de “anatomía normal” al inicio de capítulo, preguntas de autoevaluación al final de cada capítulo y actualización e inclusión de nuevas imágenes de radiodiagnóstico, haciendo un énfasis especial en el uso de la tecnología digital vs la tradicional.**

Practical Radiation Protection in Healthcare

Oxford University Press, USA **The application of radiation to medical problems plays an ever-increasing role in diagnosis and treatment of disease. It is essential that medical physicists have the knowledge, understanding and practical skills to implement radiation protection as new techniques are developed. Practical Radiation Protection in Healthcare provides a practical guide for medical physicists and others involved with radiation protection in the healthcare environment. The guidance is based on principles set out in current recommendations of the International Commission for Radiological Protection and methods developed by a variety of professional bodies. Written by practitioners experienced in the field this practical reference manual covers both established techniques and new areas of application. This new edition has be fully revised and updated to cover new requirements linked to the increased knowledge of radiation effects, and the development of new technology. Each specialist area is covered in a separate chapter to allow easy reference with individual chapters being assigned to different types of non-ionising radiations. Tabulated data is included to allow the reader to carry out calculations for situations encountered frequently without reference to further texts.**

FRCR Physics Notes

Medical Imaging Physics for the First FRCR Examination

Comprehensive medical imaging physics notes aimed at those sitting the first FRCR physics exam in the UK and covering the scope of the Royal College of Radiologists syllabus. Written by Radiologists, the notes are concise and clearly organised with 100's of beautiful diagrams to aid understanding. The notes cover all of radiology physics, including basic science, x-ray imaging, CT, ultrasound, MRI, molecular imaging, and radiation dosimetry, protection and legislation. Although aimed at UK radiology trainees, it is also suitable for international residents taking similar examinations, postgraduate medical physics students and radiographers. The notes provide an excellent overview for anyone interested in the physics of radiology or just refreshing their knowledge. This third edition includes updates to reflect new legislation and many new illustrations, added sections, and removal of content no longer relevent to the FRCR physics exam. This edition has gone through strict critique and evaluation by physicists and other specialists to provide an accurate, understandable and up-to-date resource. The book summarises and pulls together content from the FRCR Physics Notes at Radiology Cafe and delivers it as a paperback or eBook for you to keep and read anytime. There are 7 main chapters, which are further subdivided into 60 sub-chapters so topics are easy to find. There is a comprehensive appendix and index at the back of the book.

Recommended Standards for the Routine Performance Testing of Diagnostic X-Ray

Imaging Systems

This title provides essential guidance for anyone responsible for diagnostic X-Ray equipment. It gives clear advice on which routine performance tests are essential and which are desirable, where to get information on how to do them, who should be doing them and how often they should be done. For many tests it also gives guidance as to when the results indicate further action should be taken. This second edition takes into account the introduction of new technologies in medical imaging including CR, DDR and image display devices.

Walter and Miller's Textbook of Radiotherapy E-book

Radiation Physics, Therapy and Oncology

Elsevier Health Sciences **A comprehensive textbook of radiotherapy and related radiation physics and oncology for use by all those concerned with the uses of radiation and cytotoxic drugs in the treatment of patients with malignant disease. Walter & Miller's Textbook of Radiotherapy has become the core text for therapeutic radiography students and an important introductory text for trainee radiologists and clinical physicists. The book is divided into two parts: the first covers underlying principles of physics, and the second is a systematic review by tumour site concentrating on the role of radiotherapy in the treatment of malignant disease and setting its use in context with chemotherapy and surgery. The 7th edition continues the tradition of bringing the physics and clinical application of radiation for therapy together at entry level and is completely revised to take into account the huge technological advances in radiotherapy treatment since publication of the previous edition. *Imaging is now an essential part of radiotherapy, relevant for both the treatment and preparation of a patient's treatment. Radionuclide imaging and X-ray imaging have been expanded to MRI and PET, along with some use of ultrasound. *Treatment planning dose prediction - the basis and application of modern computational calculations are explained for modern treatment delivery systems. The role of the algorithm for dose prediction is central to ensure speedy and accurate calculations for treatment. *Quality Control *Quality Systems The book is supported by Evolve electronic resources: sample plans, additional diagnostic images and clinical photographs.**

Ecological Agrarian

Agriculture's First Evolution in 10,000 Years

Purdue University Press **As population growth levels off and production yields continue to grow, demands on agriculture are changing and the focus of agriculture is changing too."--BOOK JACKET.**

Stereotactic Body Radiation Therapy

Springer Science & Business Media **Stereotactic body radiation therapy (SBRT) has emerged as an important innovative treatment for various primary and metastatic cancers. This book provides a comprehensive and up-to-date account of the physical/technological, biological, and clinical aspects of SBRT. It will serve as a detailed resource for this rapidly developing treatment modality. The organ sites covered include lung, liver, spine, pancreas, prostate, adrenal, head and neck, and female reproductive tract. Retrospective studies and prospective clinical trials on SBRT for various organ sites from around the world are examined, and toxicities and normal tissue constraints are discussed. This book features unique insights from world-renowned experts in SBRT from North America, Asia, and Europe. It will be necessary reading for radiation oncologists, radiation oncology residents and fellows, medical physicists, medical physics residents, medical oncologists, surgical oncologists, and cancer scientists.**

Handbook of Radiotherapy Physics

Theory and Practice

CRC Press **From background physics and biological models to the latest imaging and treatment modalities, the Handbook of Radiotherapy Physics: Theory and Practice covers all theoretical and practical aspects of radiotherapy physics. In this comprehensive reference, each part focuses on a major area of radiotherapy, beginning with an introduction by the editors and then subdividing into self-contained chapters. The first three parts present the fundamentals of the underlying physics, radiobiology, and technology involved. The ensuing sections discuss the support requirements of external beam radiotherapy, such as dose measurements, properties of clinical beams, patient dose computation, treatment planning, and quality assurance, followed by a part that explores exciting new advances that include developments in photon and particle therapy. Subsequent sections examine brachytherapy using sealed and unsealed sources and provide the framework of radiation protection, including an appendix that describes the detailed application of UK legislation. The final part contains handy tables of both physical constants and attenuation data. To achieve safe and effective radiotherapy, there needs to be a close understanding among various disciplines. With contributions from renowned specialists, the Handbook of Radiotherapy Physics: Theory and Practice provides essential theoretical and practical knowledge for medical physicists, researchers, radiation oncologists, and radiation technologists.**

Selection Criteria for Dental Radiography

Radiation Oncology Physics

A Handbook for Teachers and Students

IAEA **This publication is aimed at students and teachers involved in teaching programmes in field of medical radiation physics, and it covers the basic medical physics knowledge required in the form of a syllabus for modern radiation oncology. The information will be useful to those preparing for professional certification exams in radiation oncology, medical physics, dosimetry or radiotherapy technology.**

Physical Properties of Tissues

A Comprehensive Reference Book

Academic Press **This unique reference book describes quantitatively the measured and predicted values of all the physical properties of mammalian tissue. Reported measurements are thoroughly documented and are complemented by a range of empirical mathematical models which describe the observed physical behavior of tissue.**Intended as a broad-ranging reference, this volume gives the bioengineer, physicist, radiologist, or physiologist access to a literature which may not be known in detail. It will also be of value for those concerned with the study of a range of environmental radiation hazards. Most extensive compilation of values of physical properties of tissue**Presents data for thermal, optical, ultrasonic, mechanical, x-ray, electrical, and magnetic resonance properties**Comprehensive bibliography**

Practical Nuclear Medicine

Springer Science & Business Media **This book is an essential guide for all practitioners. The emphasis throughout is on the practice of nuclear medicine. Primarily aimed at the radiologist, physician, physicist or technologist starting in nuclear medicine, it will also appeal to more experienced practitioners who are keen to stay up-to-date. The practical approach with tables as "recipes" for acquisition protocols means it is essential for any departmental shelf. 3rd edition expanded - now covering areas of development in nuclear medicine, such as PET and other methods of tumour imaging, data processing. All illustrations are up-to-date to reflect current standards of image quality.**

Quality Assurance of Aseptic Preparation Services Standards Handbook

Standards for unlicensed aseptic preparation in the UK, as well as practical information for implementing the standards.

Quality Control of Gamma Cameras and Nuclear Medicine Computer Systems

Institute of Physics and Engineering in Medicine

The Craft of Scientific Presentations

Critical Steps to Succeed and Critical Errors to Avoid

Springer Science & Business Media **This timely and hugely practical work provides a score of examples from contemporary and historical scientific presentations to show clearly what makes an oral presentation effective. It considers presentations made to persuade an audience to adopt some course of action (such as funding a proposal) as well as presentations made to communicate information, and it considers these from four perspectives: speech, structure, visual aids, and delivery. It also discusses computer-based projections and slide shows as well as overhead projections. In particular, it looks at ways of organizing graphics and text in projected images and of using layout and design to present the information efficiently and effectively.**

Adaptive Radiation Therapy

CRC Press **Modern medical imaging and radiation therapy technologies are so complex and computer driven that it is difficult for physicians and technologists to know exactly what is happening at the point-of-care. Medical physicists responsible for filling this gap in knowledge must stay abreast of the latest advances at the intersection of medical imaging and radiation therapy. This book provides medical physicists and radiation oncologists current and relevant information on Adaptive Radiation Therapy (ART), a state-of-the-art approach that uses a feedback process to account for patient-specific anatomic and/or biological changes, thus delivering highly individualized radiation therapy for cancer patients. The book should also benefit medical dosimetrists and radiation therapists. Adaptive Radiation Therapy describes technological and methodological advances in the field of ART, as well as initial clinical experiences using ART for selected anatomic sites. Divided into three sections (radiobiological basis, current technologies, and clinical applications), the book covers: Morphological and biological biomarkers for patient-specific planning Design and optimization of treatment plans Delivery of IMRT and IGRT intervention methodologies of ART Management of intrafraction variations, particularly with respiratory motion Quality assurance needed to ensure the safe delivery of ART ART applications in several common cancer types / anatomic sites The technology and methodology for ART have advanced significantly in the last few years and accumulated clinical data have demonstrated the need for ART in clinical settings, assisted by the wide application of intensity modulated radiation therapy (IMRT) and image-guided radiation therapy (IGRT). This book shows the real potential for supplying every patient with individualized radiation therapy that is maximally accurate and precise.**

ICRP Publication 135

Diagnostic Reference Levels in Medical Imaging

SAGE Publications Limited

Quality Control and Artefacts in Magnetic Resonance Imaging

Institute of Physics and Engineering in Medicine **Quality Control and Artefacts in Magnetic Resonance Imaging is an authoritative, comprehensive and practical guide for all medical imaging professionals with an interest in evaluating and assuring image quality and scanner performance in MRI. Written by leading UK experts, the report is a major revision of IPEM Report 80: Quality Control in Magnetic Resonance Imaging. The report is in two parts. Part I deals with quality control, with chapters on test object design and test materials, signal parameter measurement (signal-to-noise ratio, ghosting, etc.), geometric parameters (resolution, distortion), slice parameters (position, width and profile), relaxometry and contrast. For each parameter a consistent and systematic structure provides a literature review with reference to current international standards, parameter definition, description of test methods, practical guidance including frequency of measurement, analysis and interpretation of results, and pitfalls. A specialist QC chapter is a new and unique feature providing guidance relating to specific clinical and research techniques: field mapping, diffusion, BOLD fMRI, voxel-based morphometry, dynamic contrast-enhanced MRI, quantitative velocity mapping, spectroscopy, and ultra-high field MRI. Part II provides a comprehensive and exhaustive encyclopaedia of MRI artefacts both common and rare arising from technical limitations and faults, patient and organ motion, tissue properties, intrinsic MR physics, and reconstruction limitations. Pictorial examples of each artefact from clinical or phantom images are provided along with a detailed explanation of the causes and advice on reducing, avoiding or removing the artefact. A summary table of artefact appearance, causes and remediation will enable readers to diagnose and solve their own artefact problems. The practical nature of the report is underpinned by academic rigour with 269 references and a comprehensive index. Quality Control and Artefacts in Magnetic Resonance is an essential reference for all MRI departments and MRI professionals.**

Quality Assurance for SPECT Systems

The objective of this publication is to provide professionals in nuclear medicine centres with quality assurance procedures for the scintillation camera, computer system and digital image display. It is intended to be a resource for medical physicists, technologists and other healthcare professionals who are responsible for ensuring optimal performance of imaging instruments, particularly SPECT systems, in their respective institutions. It may also be useful to managers, clinicians and other decision makers who are responsible for implementing quality assurance/quality control programmes in nuclear medicine centres.

Digital Mammography

A Holistic Approach

Springer **This book offers a single publication to be utilised comprehensively as a reference manual within current mammographic clinical practice for use by assistant practitioners and practitioners as well as trainees in radiography and related disciplines. In recent years mammographic clinical practice and technology have evolved rapidly and become increasingly sophisticated, this book will cover these issues. The public feel increasingly empowered to ‘have a say’ in their care and expectations of their mammography experience is high. Consequently a well-trained, well-informed practitioner is of paramount importance in clinical practice today. This book addresses patient/client-related issues in the form of psychological and emotional support they may require. This will enable the reader to gain insight into the patient/client perspective and thereby assist in meeting their needs.**

Setting Up a Radiotherapy Programme

Clinical, Medical Physics, Radiation Protection and Safety Aspects

This publication provides guidance for designing and implementing radiotherapy programmes, taking into account clinical, medical physics, radiation protection and safety aspects. It reflects current requirements for radiotherapy infrastructure in settings with limited resources. It will be of use to professionals involved in the development, implementation and management of radiotherapy programmes

On Target

Ensuring Geometric Accuracy in Radiotherapy

Basic Physics of Ultrasonographic Imaging

World Health Organization **The present volume on basic physics of ultrasonographic imaging procedures provides clear and concise information on the physics behind ultrasound examinations in diagnostic imaging. It attempts to present the subject from a simple approach that should make it possible for the target groups to comprehend the important concepts which form the physical basis of ultrasonic imaging. The main target group of this manual is radiological technologists and radiographers working with diagnostic ultrasound in developing countries. Clinicians and nurse practitioners may also find the simple presentation appealing. A conscious effort has been made to avoid detailed mathematical treatment of the subject. The emphasis is on simplicity.**

Diagnostic Radiology Physics

A Handbook for Teachers and Students

International Atomic Energy Agency **This publication is aimed at students and teachers involved in programmes that train medical physicists for work in diagnostic radiology. It provides, in the form of a syllabus, a comprehensive overview of the basic medical physics knowledge required for the practice of modern diagnostic radiology. This makes it particularly useful for graduate students and residents in medical physics programmes. The material presented in the publication has been endorsed by the major international organisations and is the foundation for academic and clinical courses in both diagnostic radiology physics and in emerging areas such as imaging in radiotherapy.**

Specification and Acceptance Testing of Computed Tomography Scanners